Title 23, Division 3, Chapter 16 Underground Storage Tank Regulations 1997/1998 Amendments

I. Emergency Rulemaking (December 1997)

Index to Rulemaking File Title 23, Division 3, Chapter 16 Underground Storage Tank Regulations 1997/1998 Amendments

ATTORNEY Echo

DUE DATE 12/19/97

12/16/97

R-BASE

EDITOR DATA

MAIL-BACK

APPROVED

EMERGENCY

MASTER FILE

WATER RESOURCES BD VB 97 1916 007

DEC 31 1997
OCC

STATE OF CALIFORNIA
OFFICE OF ADMINISTRATIVE LAW

WATER RESOURCES CONTROL BD. REGULATORY ACTION: Title 23 California Code of Regulations Amend 2611, 2662, 2664	NOTICE OF APPROVAL OF EMERGENCY REGULATORY ACTION (Gov. Code, Sec. 11349.6) OAL File No. 97-1216-03 E

SUMMARY OF REGULATORY ACTION
The emergency regulatory action deals with underground storage tanks.

OFFICE OF ADMINISTRATIVE LAW DECISION
OAL approves this regulatory action.

REASON FOR DECISION
This regulatory action meets all applicable legal requirements.

Comments:

DATE: 12/26/97

David Potter, Senior Staff Counsel
for BARBARA ECKARD
STAFF COUNSEL

for: CHARLENE G. MATHIAS
ASSISTANT CHIEF COUNSEL

Original: Walt Pettit, Executive Director
cc: Barbara Wightman

State of California Office of Administrative Law

Memorandum

To: Agency Regulation Coordinator

Date :06/10/98

File # :97-1216-03E

Phone :323-6225

From: OAL Front Counter

Subject: **RETURN OF APPROVED RULEMAKING MATERIALS**

OAL hereby returns this approved rulemaking file your agency submitted for our review.

Included with this approved file is a copy of the regulation(s) stamped "ENDORSED FILED" by the Secretary of State.

The effective date of an approved file is specified on the Form 400 (see item B.4) Note: The 30th Day after filing with the Secretary of State is calculated from the date the Form 400 was stamped "ENDORSED FILED" by the Secretary of State.

DO NOT DISCARD OR DESTROY THIS FILE

Due to its legal significance, please retain this rulemaking record. Government Code section 11347.3(d) requires that this record be available to the public and to the courts for possible later review. Government Code Section 11347.3(e) further provides that "...no item contained in the file shall be removed, altered, or destroyed or otherwise disposed of." See also the Records Management Act (Government Code section 14740 et seq.) and the State Administrative Manual (SAM) section 1600 et seq.) regarding retention of your records. If you decide not to keep this rulemaking record at your agency office or at the State Records Center, you may transmit it to the State Archives with instructions that the Secretary of State shall not remove, alter, or destroy or otherwise dispose of any item contained in the file. See Government Code section 11347.3(f)

enclosures

STATE OF CALIFORNIA--OFFICE OF ADMINISTRATIVE LAW

NOTICE PUBLICATION/REGULATIONS SUBMISSION

EMERGENCY

(See instructions on reverse)

STD 400 (REV 3-92) FMC

For use by Secretary of State only

OAL FILE NUMBERS:	NOTICE FILE NUMBER	REGULATORY ACTION NUMBER	EMERGENCY NUMBER	PREVIOUS REGULATORY ACTION NUMBER
			97-1216-03E	

For use by Office of Administrative Law (OAL) only

ENDORSED. APPROVED FOR FILING AND PUBLICATION DEC 26 1997 Office of Administrative Law

97 DEC 16 PM 3:50 OFFICE OF ADMINISTRATIVE LAW

97 DEC 26 PM 12:44

SECRETARY OF STATE

AGENCY	AGENCY FILE NUMBER (If any)
State Water Resources Control Board	

A. PUBLICATION OF NOTICE (Complete for publication in Notice Register)

1. SUBJECT OF NOTICE	TITLE(S)	FIRST SECTION AFFECTED	2. REQUESTED PUBLICATION DATE

3. NOTICE TYPE	4. AGENCY CONTACT PERSON	TELEPHONE NUMBER
☐ Notice re Proposed Regulatory Action ☐ Other		

OAL USE ONLY: NOTICE ON PROPOSED NOTICE ☐ Approved as Submitted ☐ Approved as Modified ☐ Disapproved/Withdrawn | NOTICE REGISTER NUMBER | PUBLICATION DATE

B. SUBMISSION OF REGULATIONS (Complete when submitting regulations)

1. SPECIFY CALIFORNIA CODE OF REGULATIONS TITLE(S) AND SECTION(S) (Including title 26, if toxics-related)

SECTIONS AFFECTED

ADOPT

AMEND: Sections 2611 and 2662, 2664

TITLE(S): 23

REPEAL: ~~Section 2664~~

2. TYPE OF FILING

☐ Regular Rulemaking (Gov. Code, § 11346)
☐ Resubmittal
☒ Emergency (Gov. Code, § 11346.1(b))
☐ Resubmittal of disapproved or withdrawn emergency filing
☐ Certificate of Compliance: The agency officer named below certifies that this agency complied with the provisions of Government Code §§ 11346.4 - 11346.8 prior to, or within 120 days of, the effective date of the regulations listed above.
☐ Print Only
☐ Changes Without Regulatory Effect (Cal. Code Regs., title 1, § 100)
☐ Other (specify)

3 DATE(S) OF AVAILABILITY OF MODIFIED REGULATIONS AND/OR MATERIAL ADDED TO THE RULEMAKING FILE (Cal Code Regs. title 1, §§ 44 and 45)

4 EFFECTIVE DATE OF REGULATORY CHANGES (Gov. Code § 11346.2)
☐ Effective 30th day after filing with Secretary of State
☒ Effective on filing with Secretary of State
☐ Effective other (Specify)

5 CHECK IF THESE REGULATIONS REQUIRE NOTICE TO, OR REVIEW, CONSULTATION, APPROVAL OR CONCURRENCE BY, ANOTHER AGENCY OR ENTITY
☐ Department of Finance (Form STD. 399)
☐ Fair Political Practices Commission
☐ State Fire Marshal
☐ Other (Specify) N/A

6 CONTACT PERSON	TELEPHONE NUMBER
Barbara Wightman	227-4318

7

I certify that the attached copy of the regulation(s) is a true and correct copy of the regulation(s) identified on this form, that the information specified on this form is true and correct, and that I am the head of the agency taking this action, or a designee of the head of the agency, and am authorized to make this certification.

SIGNATURE OF AGENCY HEAD OR DESIGNEE	DATE
BD Walt Pettit	9 Dec 97

TYPED NAME AND TITLE OF SIGNATORY

Walt Pettit, Executive Director

MEMORANDUM

Cal/EPA

State Water Resources Control Board

2014 T Street, Suite 130
Sacramento, CA 95814
Mail Code G-8
(916) 227-4351
FAX (916) 227-4349

Pete Wilson
Governor

TO: Barbara Eckard, Staff Counsel
Office of Administrative Law
555 Capitol Mall, Suite 1290
Sacramento, Ca 95814-4602

FROM: Allan Patton, Manager
Underground Storage Tank Program
DIVISION OF CLEAN WATER PROGRAMS

DATE: DEC 24 1997

SUBJECT: FILE NO. 97121603E - UNDERGROUND STORAGE TANK REGULATIONS

Enclosed is a revised rulemaking package which supersedes the package you received on December 16, 1997. The enclosed package includes:

1. One copy of the Informative Digest.
2. Seven copies of the proposed text
3. One copy of a letter from Paul Schobert, H.T. Technologies, requesting a rescission of the requirement to install interior coating before installing a bladder
4. One copy of a report by H.T. Technologies
5. One copy of Assembly Bill 1491 (Cunneen)
6. One copy of the May 14, 1997 letter from Carol Browner, US EPA
7. Form 399 with authorized original signature
8. One copy of Resolution No. 97-106
9. One copy of Resolution No. 97-107

Please amend the previously submitted Form 400 to reflect that Section 2664 is being amended and not repealed.

If you have questions, please call me at 227-4351.

1. Informative Digest

EMERGENCY RULEMAKING
Title 23, Division 3, Chapter 16, Articles 1 and 6
California Code of Regulations

Underground Storage Tank Regulations

Sections affected: 2611, 2662, and 2664

Finding of Emergency

The adoption of the proposed regulations is necessary for the preservation of the public peace, health and safety or general welfare (section 11346.1).

Informative Digest

The State Water Resources Control Board is proposing two changes in its Underground Storage Tank (UST) Regulations aimed at 1) making state UST rules more consistent with federal rules (40 CFR 280); and, 2) increasing options available to tank owners for complying with a state and federally mandated deadline for upgrading their USTs. The upgrade deadline, December 22, 1998, is specified in federal rules at 40 CFR 280.21. In a letter dated May 14, 1997 (copy attached), Carol Browner, US EPA Administrator, informed Regional Administrators across the United States that EPA would not extend the deadline. State law and rules specify the same upgrade deadline. [Health and Safety Code Section 25292 and Title 23, Division 3, Chapter 16, Section 2662, California Code of Regulations (CCR)]. Under current state rules, the owner must either replace a UST system with a new system meeting current double containment and corrosion protection standards [Section 2662(b)] or optionally, if and only if it is a motor vehicle fuel (MVF) tank, upgrade it by adding cathodic protection and interior epoxy lining, overfill and spill prevention equipment, and other appurtenances or by adding cathodic protection, epoxy lining and an interior flexible bladder, overfill and spill prevention equipment, and other appurtenances [Section 2662(c].

This change is proposed as an emergency rulemaking because a large number of tanks remain to be upgraded and a delay would increase risk to health and safety and the environment.

1. Change in definition of Motor Vehicle Fuel Tank (Section 2611)

   Current upgrade rules divide regulated UST facilities into two categories – those storing motor vehicle fuel and those storing other hazardous substances (Section 2662). If the tank is a MVF tank, it may be upgraded or replaced. However, if it is a non-MVF tank, it must be excavated and replaced with a new system, which is more costly, time consuming, and invasive to the operation of the business.

   Note: Section 2662 does not state that non-MVF tanks must be replaced; it states that non-MVF tanks must be "retrofitted with secondary containment." However, this is neither economically feasible, nor an accepted industry practice. Therefore, in order to

provide secondary containment required by Section 2662, the only choice is to replace the non-MVF tank with a new double-wall system.

Non-MVF tanks must meet stricter construction and monitoring standards (replacement rather than retrofitting) because they generally contain products that are more hazardous to the public health and the environment.

Federal UST rules similarly establish two upgrade standards based upon whether the tank stores "*petroleum*" or *other* "*hazardous substance*" *(see definitions at 40 CFR 280.12).* The federal upgrade option [40 CFR 280.21], while less stringent than the state upgrade rules (i.e., it requires interior lining or cathodic protection and doesn't address bladders), nevertheless applies to a broader category of substances. All tanks storing petroleum products may be upgraded. Petroleum includes motor fuels, jet fuels, distillate fuel oils, lubricants, petroleum solvents and used oils. Federal "hazardous substance" USTs (like state regulated non-MVF tanks) must be replaced with secondary containment (40 CFR 280.42).

The state definition of MVF tank is unnecessarily narrow and limits options available to owners of California's underground storage tank (UST) systems for meeting upgrade requirements. Existing regulations define a MVF tank as one ". . .that contains a petroleum product which is intended to be used primarily to fuel motor vehicles or engines."

This means that if a steel tank containing a given petroleum product - *e.g. diesel* - is used to fuel an emergency generator (engine) at a hospital, the tank is a MVF tank and may be upgraded However, if the same tank is used to heat the hospital's water supply, the tank would not meet the definition and would have to be replaced at considerable added cost, facility down-time and construction impact.

The proposal would expand the definition of MVF to match the federal petroleum definition, with the exception of "used oil". In California, used oil is defined as a hazardous waste, which included in the class of "other hazardous substance"; [Health and Safety Code Section 25250.1(a)(1)] and should, therefore, not be covered by the MVF definition. The expanded definition would allow tanks storing heating oil, fresh lubricating oil and other petroleum products, which pose an equal or lower risk to the environment as gasoline (a MVF), to be upgraded instead of having to be replaced.

2. Delete Requirement for Mandatory Interior Lining on Bladder Upgrades (Sections 2662 & 2664)

Under existing regulations, tank owners who choose to upgrade their steel USTs must add an epoxy lining to the inside of the tank and fit the tank with cathodic protection. They also have the option, but are not required to, install a bladder system inside the tank, but only after interior lining has been installed. In a 1994 rulemaking which implemented the standards for upgrading tanks in section 2664, the requirement to combine lining with

bladder installation was made because of the concern that internal corrosion might threaten the structural integrity of the steel tank.

Bladders are flexible polyvinyl-chloride (PVC) containers similar to the shape and size of a tank. They are installed within the UST to provide primary containment of stored petroleum while the existing UST, or host tank, provides the secondary containment. The space between the existing tank and the bladder is monitored by maintaining a continuous vacuum. If the vacuum pressure changes, an audible and visual alarm is triggered.

A representative from a bladder manufacturing company has requested in writing the recission of the lining requirement as a condition to bladder installation, declaring that the continuous vacuum would prevent significant internal corrosion. (A copy of the letter is attached). The representative stated that the benefit of the secondary containment and monitoring provided by bladder systems is a safety feature not provided by interior-lined steel tanks. Owners are discouraged from installing bladders because of the considerable cost of adding the lining (for a typical 10,000 gallon tank, the added cost of the lining would be approximately $5,000)

Based on current thinking, (see attached letter from a corrosion engineer) it appears that interior lining is not necessary for all bladder installations in order to protect against internal corrosion. The level of protection provided by bladders is at least as high as that provided by lining. The proposal would provide additional flexibility in meeting the upgrade requirement with no increased risk to the environment.

The federal rules are silent on the use of bladders. To use a bladder system in a tank upgraded under the federal rules then, one would only have to add interior lining or cathodic protection, but not both. The current California rules do require both, and the proposal, by eliminating the internal lining requirement, would cause California rules to become more consistent with federal rules.

Effect of Proposed Action

As discussed above, the proposed amendments will make state requirements more consistent, but not identical, with federal upgrading requirements. The expansion of the definition of MVF tank would allow approximately the same class of tanks under the state and federal rules to be eligible for the less costly upgrade options. The notable exception would be used oil. The recission of the interior lining requirement for bladder installations would allow tank owners to install bladders with cathodic protection only, making the state and federal requirements for tanks with bladders essentially the same, even though the federal rules are silent on bladders.

Tank owners will have more options for meeting the upgrade requirements. Increased options means lower costs, increased availability of suppliers and contractors, less impact to business operations (a bladder installation can be completed in two days vs. two weeks or more for a

new installation), and overall higher compliance. Higher compliance means fewer leaking tanks impacting groundwater.

The expanded definition of MVF means more tanks storing petroleum can be upgraded instead of being replaced. Upgrading is typically in the range of $20,000 per tank vs. $50,000 - $80,000 for a new tank. Bladders become a more cost effective option because the interior lining (typical cost - $5,000) has been deleted. Rescinding the requirement to line a tank before installing a bladder in section 2664(b) will remove an unnecessary, cost prohibitive step in the upgrading process with no compromise of the protection of the public health and the environment. While the proposed amendment would eliminate the blanket requirement to line all bladder installations, a provision is included in section 2664(b)(5) which does require interior lining where it is recommended by either manufacturers' specifications or the special inspector who evaluates the structural integrity of the tank.

Without these changes, owners who might otherwise decide to go out of business and walk away from their tanks because they cannot meet replacement costs may find they are able to upgrade their systems by complying with the proposed regulations. Abandoned tanks may contain product which could leak, causing public health and environmental problems. Abandoned tanks also become the responsibility of the state to remove and clean up.

Comparable Federal Regulation or Statute

See the above discussion. The proposed amendments cause state rules to more closely conform with existing comparable federal regulations or statutes

Need for Immediate Action

Only 50 percent of the approximately 65,000 underground storage tanks in California have been upgraded or replaced as of late December 1997. There remains only one year (until December 22, 1998) to complete the necessary work to bring these 30,000 or so tanks into compliance. Previously, the deadline was expected to come and go with little impact on the state economy or public services, other than to result in some increase in enforcement actions by state and local regulatory agencies. However, recent legislation (AB 1491, Cunneen) established a prohibition, beginning January 1, 1999, against the delivery of petroleum to tanks that do not meet upgrade requirements. Before this legislation, some owners of small gasoline stations may have planned to wait until after the rush to have their tanks upgraded, with little consequence. The new legislation will effectively put these small businesses out of business unless the owners can get their tanks upgraded by the deadline. Similarly, a hospital with an emergency boiler tank might have missed the deadline with no effect. Now, however, the inability to receive fuel in that non-upgraded emergency tank would jeopardize the operation of the hospital. The prohibition against fuel delivery is an especially urgent matter for owners and operators of emergency tanks - those tanks that serve in essential or emergency services such as hospitals, prisons, air traffic control radar, and police and fire facilities. Any gap in services provided by these agencies and facilities could have a detrimental effect on public safety.

The proposed change in regulations cannot be delayed to allow the formal rulemaking process to be completed. There are many sequential steps to complete a UST upgrade or replacement job: an engineer must design the project, a budget must be developed, contractor bids must be obtained, local permits have to be obtained, the project has to be scheduled, construction must be completed, and finally the project must be inspected by the local authority. The minimum timeframe for completing this work (as recently reported by Sacramento County) is 90 days, but can easily extend to 180 days or more. The clock cannot begin until the proposed changes take effect.

Delays can also result from inclement weather, materials in short supply (new tanks, lining materials, monitoring equipment), and backlogs of permit applications and inspections. Many local agencies have only one or two inspectors to handle UST applications, permits, and inspections in an entire county. During the process, if the owner discovers contamination from the tanks or piping, even more time is needed to complete the work, because cleanup is required.

The Cunneen Bill also mandates that local permitting agencies issue an "Upgrade Compliance Certificate" to all facilities that meet the upgrade requirements. The 100 plus local UST permitting agencies will be busy over the next 12 months inspecting the approximately 22,000 UST facilities in the state to determine which ones are entitled to receive the certificate. This work will further impact the ability of these agencies to process upgrade permits and perform installation inspections.

Immediate action is required to allow sufficient time for non-upgraded tanks to be brought into compliance and avoid shut-down of critical emergency tanks, impacts to small business, and abandonment of potentially leaking USTs.

Authority: Health and Safety Code Section 25299.3(a)
Reference: Health and Safety Code Sections 25292, 25292.1, 25280(b), 25250.1(a)(1)

Mandate on local agencies or school districts; cost or savings to state or local agencies or school districts; nondiscretionary costs or savings imposed on local agencies; cost or savings in federal funding to the state: None.

Fiscal Impact

None.

2. Proposed text

EMERGENCY RULEMAKING
Title 23, Division 3, Chapter 16, Articles 1 and 6
California Code of Regulations
Underground Storage Tank Regulations

Text Of Emergency Regulation Changes

§ 2611. Additional Definitions.

"Motor vehicle fuel tank" means an underground storage tank that contains a petroleum product ~~which is intended to be used primarily to fuel motor vehicles or engines~~. The definition does not include underground storage tanks that contain used oil.

Authority: Health and Safety Code 25299.3, 25299.7
Reference: Health and Safety Code 25281, 25282, 25299.5(a); 40 CFR 280.10, 280.12

§ 2662. Requirements for Upgrading Underground Storage Tanks

(c)(2). Bladder system, ~~interior lining,~~ and cathodic protection -

~~(A)~~ Bladder systems shall be installed in accordance with the requirements of section 2664.

~~(B) When upgrading a fiberglass or clad tank with a bladder system, interior lining and cathodic protection are not required if a special inspector and the local agency determine they are not necessary.~~

Authority: Health and Safety 25299.3, 25299.7
Reference: Health and Safety 25291 and 25296 and 40 CFR 280.1

§ 2664. Requirements for Using Bladder Systems

(b) Materials used in the bladder system and in the installation process shall be approved by an independent testing organization based on voluntary consensus standards, an industry code, or engineering standard for the applicable use of the bladder system. Evidence of this approval shall be provided to the local agency before the local agency authorizes the installation. The following conditions shall be met:

(1) The bladder system shall be installed under the direct supervision of a representative of the bladder system fabricator or a contractor certified by the fabricator.

(2) The entire interstitial space between the tank and the bladder shall be monitored in accordance with subsection 2632(c)(2).

(3) Materials used in the bladder system shall be product-tight and compatible with the substance stored.

(4) The bladder system shall include an internal striker plate (wear plate) which meets the requirements of section 2631(c).

(5) If the underground storage tank is constructed of steel, cathodic protection shall be installed in accordance with section 2635(a)(2)(A) and, before installing a bladder system, a special inspector shall certify that the underground storage tank has sufficient structural integrity to seal the interstitial space between the bladder and the underground storage tank and provide secondary containment. The special inspector shall make this certification by entering and inspecting the entire interior surface of the tank and shall base this certification upon the set of procedures and criteria specified in section 2663(b)(2), except that abrasive blasting is only required to the extent deemed necessary by manufacturers' specifications, or the special inspector, to assess the structural integrity of the underground storage tank.

(6) The bladder installer shall certify in writing to the local agency that sufficient measures have been taken to minimize or eliminate the potential for the underground storage tank or interstitial monitoring system components to puncture the bladder.

(7) Before installing a bladder, thin areas or other flaws in the underground storage tank walls that need additional reinforcing shall be reinforced in accordance with section 2661(d).

(8) If required by manufacturers' specifications or the special inspector, the underground storage tank shall be lined in accordance with section 2663 prior to installation of the bladder only to the thickness deemed necessary by the more stringent requirement of the manufacturers' specifications or the special inspector.

~~(e). Before installing a bladder system in a steel tank, the tank interior shall be lined in accordance with section 2663 and shall be provided with cathodic protection as required by section 2635(a)(2)(A). The periodic inspection specified in subsection 2663(h) is not required unless the bladder system is removed for repairs or replacement. Unless the local agency determines otherwise, the limiting criteria specified in section 2663(b)(2)(B)(i) through (iv) do not apply if the lining is 250 mil fiberglass reinforced plastic or equivalent.~~

Authority: Health and Safety Code 25299.3, 25299.7
Reference: Health and Safety Code 25292, 25292.1, 40 CFR 280.21, 280.32(d), 281.33

3. Letter from Paul Schobert, H.T. Technologies, requesting a rescission of the requirement to install interior coating before installing a bladder

August 8, 1997

Mr. Walt Pettit, Executive Director
State Water Resources Control Board
901 "P" Street
Sacramento, CA 95812-0100

AUG 12 1997

Subject: Request to Rescind the Requirement in Section 2664 of Chapter 16 (Underground Storage Tank Regulations) That Single-Walled Steel Underground Storage Tank Upgrades With Bladder Systems Must Have Interior Coating In Addition to a Bladder.

H.T. Technologies is a U.S. and German-based plastic liner manufacturing company which has conducted most of its business in Europe for the past 30 years, but has recently expanded operations into the United States. Included in our line of products are a series of flexible containment systems commonly known as "bladders" for installation into single-walled steel or fiberglass storage tanks as an upgrade to secondary containment.

Our "bladder" systems include U.S third-party certified components consisting of: 1) a flexible tank similar in size and shape of the storage tank into which it is installed, 2) a layer of fleece material which lies between the outer tank and the flexible tank, and 3) an electronic interstitial monitoring system which monitors potential leaks in the flexible "bladder" and the outer tank via a constant vacuum maintained in the interstitial space between the two tanks. Changes in pressure in the interstitial space, as would be caused by a breach in either tank, triggers an audible and visual alarm indicating that a leak has occurred. This electronic triggering is nearly instantaneous once there has been a sufficient change in vacuum pressure.

The installation of a "bladder" system is one of the allowed methods of upgrading a single-walled underground storage tank in California under the current regulations The other method is to install a 1/8" thick interior coating of the tank. A "bladder" system relies on interstitial monitoring and secondary containment (the original tank) to prevent and or control, fuel leaks into the environment. A coated tank must rely on automatic tank gauging (ATG) or statistical inventory reconciliation (SIR) to monitor for leaks since there is no secondary containment and thus, no interstitial space. Because of the lack of sensitivity of ATG and SIR, they are only required to detect a leak which exceeds .2 gallons per hour. This amounts to 1752 gallons per year of undetected fuel spillage directly into the environment and ultimately to groundwater.

Federal underground storage tank upgrade requirements allow for the installation of a "bladder" system by itself. However, in Section 2664 of Chapter 16 of the California underground storage tank upgrade requirements, a 1/8" thick coating is required in addition to the "bladder" system Thus, in California, a tank owner who wants to do the safer upgrade of secondary containment, must pay nearly double the cost of a tank owner who merely wishes to install a coating and monitor for leaks using inferior methods Since

HT Technologies
5111 Avenida Encinas Suite 260 • Carlsbad, CA 92008
Ph 1-800 808 9850 • Ph 619 431 8010
Fax 619 431 7659

most tank owners will opt for the cheapest upgrade, i.e. the coating only, this is likely to result in more leaks of blended fuels containing MTBE and TAME into groundwater, than would occur if secondary containment were the preferred upgrade. This is contrary to the State Water Board's charge of protecting California's groundwater to the extent possible at the least cost.

We have read the Statement of Reasons (SOR) for the current regulations, and discovered that State Water Board technical staff included the coating requirement for "bladder" systems to control internal corrosion. While internal corrosion may be a problem with other monitoring systems, corrosion cannot occur in a constant vacuum, and thus, with our system internal corrosion will not be a problem. Additionally, we would like to see the data which State Water Board staff used to determine that internal corrosion is a problem with "bladder" systems, maybe we can be enlightened!

Since we were not doing business in the U.S. at the time the current regulations were being written, we were not able to comment on them, and thus possibly prevent what we believe to be an excessive and unnecessary requirement. Additionally, our interstitial monitoring system has only been recently third-party approved (May 1997). This explains our "last-minute" scramble to have the regulations changed. We currently have several potential customers in California who want to install a bladder, and have the increased benefits of secondary containment over a coated tank; but they do not want to pay the significantly increased cost of installing interior coating in addition to a bladder. They have been asking us why the coating requirement is in the regulations.

Our "bladder" systems have been installed in Europe without internal coating for the past 30 years, where secondary containment was required for underground fuel storage tanks long before the U S. decided to regulate underground tanks. Our "bladder" systems have an excellent performance record in Europe in terms of preventing fuel leaks into groundwater. California can benefit from this extensive knowledge and experience by encouraging low-cost upgrades to secondary containment.

We have made the above request to technical staff of the State Water Board and, although they seemed receptive, we feel that they may need support from above to initiate action on this time-important matter.

Thank you for taking the time to read this letter and consider our request If you have any questions, or wish to discuss this matter further, please contact me at 800-808-9380 Representatives of H.T. Technologies would also be happy to meet with you, or with managerial and technical staff of the State Water Board at your convenience

Sincerely,

Paul Schobert
H T Technologies

4. Report by H.T. Technologies LLC

CORROSION CONTROL

UST

FLEXIBLE FITTED TANK
&
MONITORING SYSTEM

(Interior Corrosion Control on
Existing Steel Tanks Fitted
with the H T T System)

FOR:

H T TECHNOLOGIES LLC

4360 Brownsboro Road
Louisville, ky 40207

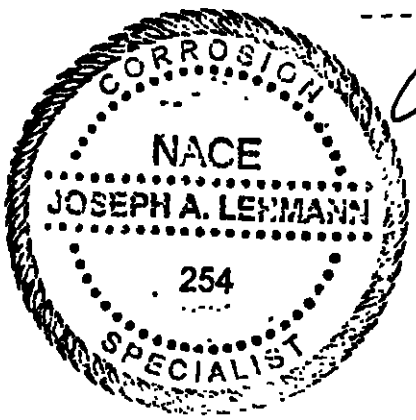
Mr. Hersch Caudill, President

BY:
LEHMANN ASSOCIATES, INC.
22702 Meadowsweet Drive
Magnolia, Texas 77355

Joseph A. Lehmann, P.E.
(NACE Certified "Corrosion Specialist")

July 26, 1997

HTTCOR2 LAI



LEHMANN ASSOCIATES, INC.

22702 Meadowsweet Drive
Magnolia, Texas 77355

281/ 252-0043
(Phone & Fax Same #)
UNDERGROUND STORAGE TANK (UST) TECHNICAL SERVICES

CORROSION CONTROL

UST
FLEXIBLE FITTED TANK
&
MONITORING SYSTEM

(Interior Corrosion Control on Existing Steel Tanks Fitted with the H T T System)

INTRODUCTION:

H T TECHNOLOGIES has requested Lehmann Associates to examine their "Flexible Fitted Tank & Monitoring System" to determine if there is a risk of corrosion attack on the interior steel surfaces of the existing (host) tank. This examination is restricted to a review of the product literature, materials and installation practices. No laboratory or field tests have been conducted in this regard.

THE SYSTEM:

Essentially, the HTT System consists of a "Flexible Tank" installed within an existing tank. There is an "Intermediate (leak detection zone) Layer" between the steel tank and the Flexible Tank (see Schematic Diagram 1). The Flexible Tank and Intermediate Layer are non-metallic.

A suction Leak Detection system is provided to maintain a continuous vacuum between the steel tank wall and the Flexible Tank. In the event the vacuum fails for any reason (i.e. perforation in either the steel tank or the Flexible Tank), an alarm (visual & audible) is activated. (See Schematic Diagram 2)

INSTALLATION:

Part of the installation procedure is to clean and dry the interior steel tank surfaces to remove any dirt, debris and moisture. It is essential for the annular space between the Flexible Tank/Intermediate Layer and the steel tank interior wall to be clean and dry.

After installation is completed, the system is tested ... and placed into operation. A continuous, monitored vacuum is maintained within the annular space. As long as the integrity of the vacuum is maintained (which is essential to the monitoring system), the annular space between the original steel tank interior wall and the HTT Flexible Tank remains clean and free of moisture ... and air tight.

CORROSION:

Corrosion of steel is an electrochemical process ... requiring an electrolyte (i.e., water) and an oxidizing agent (i.e., oxygen). See Appendix "A", "B" and "C". The corrosion is the result of instability in the metal due to energy introduced during its conversion from an ore. Corrosion is the natural process to regain stability ... revert back to an ore (i.e., rust or iron oxide).

If there is no electrolyte (moisture) and no oxygen, there is no electrochemical reaction, hence, no corrosion.

CONCLUSION:

Considering the fact that the interior steel tank walls are kept free of moisture ... and air circulation is prevented (no replenishing of oxygen) ... it can reasonably be concluded that the interior steel surfaces will remain corrosion free.

Obviously, all moisture cannot be absolutely removed. Some slight condensation may occur. This will result in a thin rust film, using up any available oxygen ... after which corrosion will be negligible. Not only will the "initial" rusting deplete the available oxygen, but it forms a tenacious oxide film (alpha oxide) which creates a passivation, resisting further corrosion.

APPLICATION:

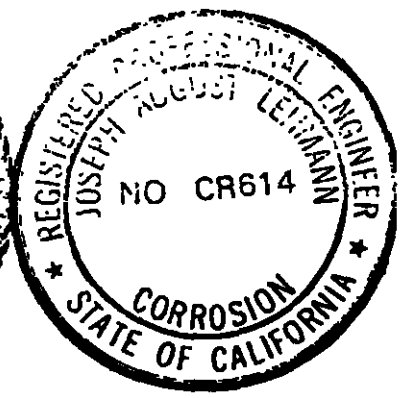
Under these circumstances, interior corrosion on the steel tank can be predicted to be nil. At worst, negligible. Consequently, there is no practical need to provide any interior lining or coating.

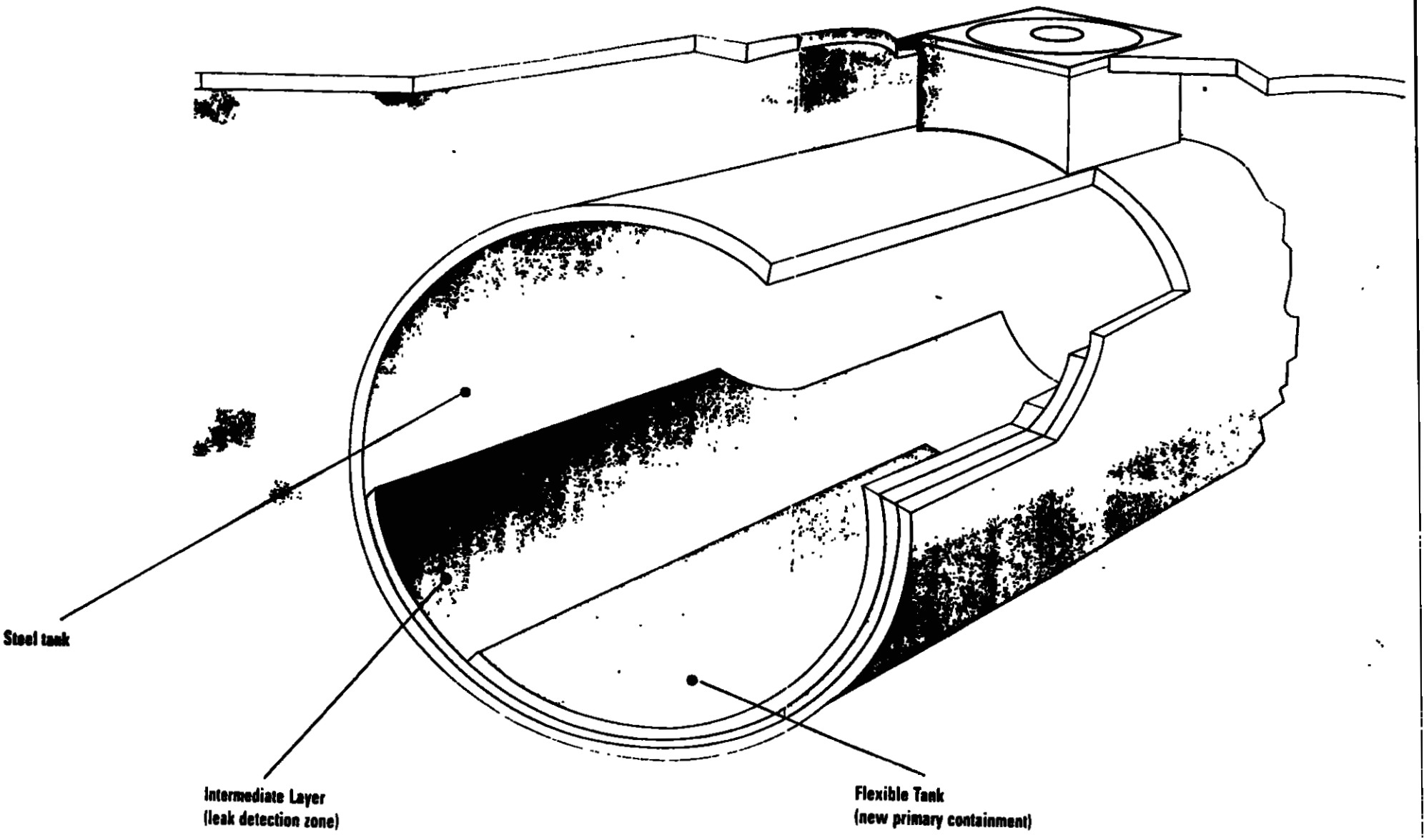
It is, however, highly recommended to provide a cathodic protection system to control exterior (soil contact) corrosion on the steel tank. Such a system should be designed, installed and maintained in accordance with NACE Standard Recommended Practice RP0285-95 (Item No. 21030) "Corrosion Control of Underground Storage Tank Systems by Cathodic Protection."

Respectfully Submitted,

Joseph A. Lehmann, P.E.
(NACE Certified "Corrosion Specialist")

HTTCOR1 LAI

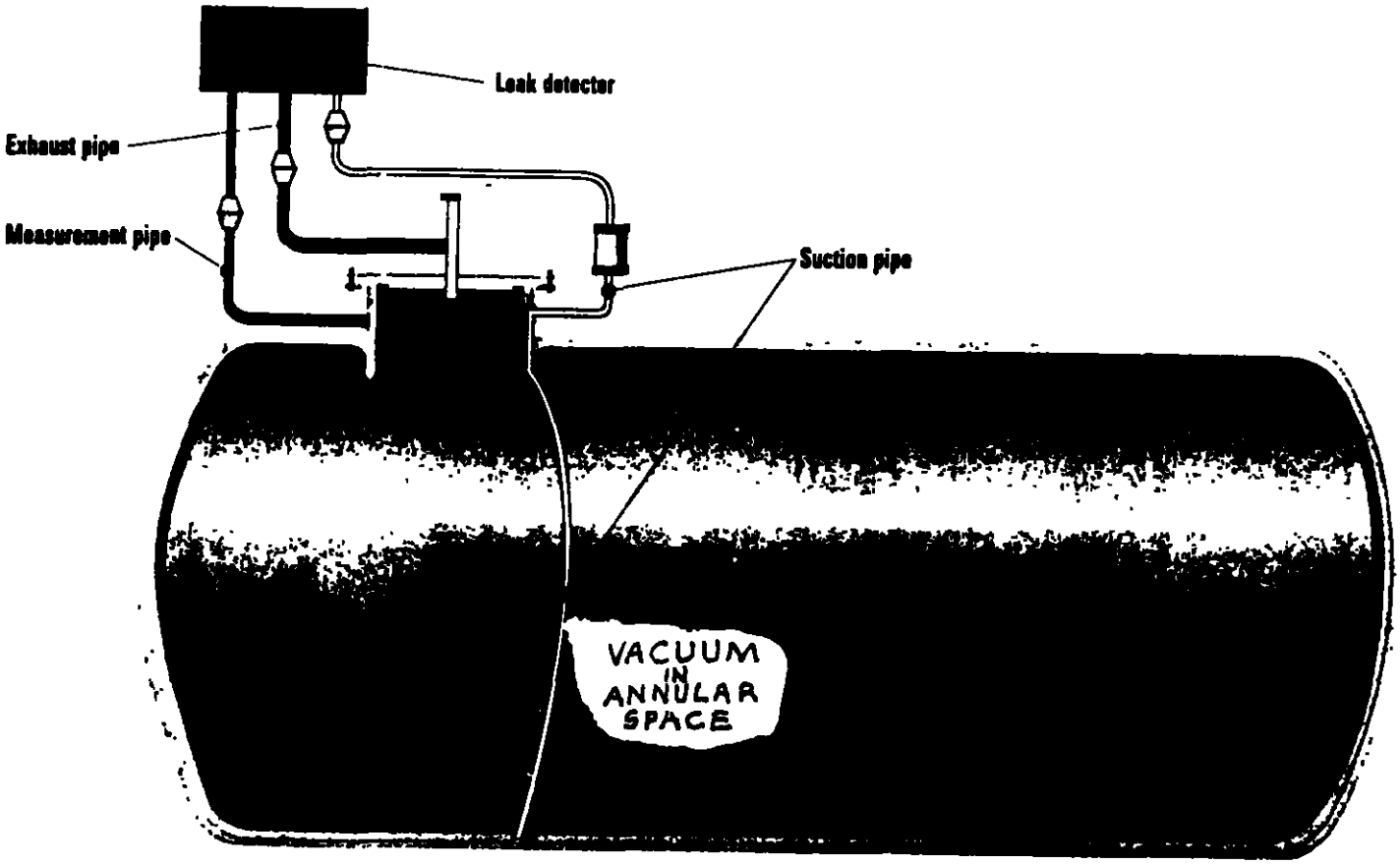




H T TECHNOLOGIES SYSTEM

SCHEMATIC DIAGRAM 1

Lehmann Associates, Inc.
22702 Meadowsweet Drive
Magnolia, Texas 77355



H T TECHNOLOGIES SYSTEM

SCHEMATIC DIAGRAM 2

VACUUM - ALARM

Lehmann Associates, Inc.
22702 Meadowsweet Drive
Magnolia, Texas 77355
281-252-0043

APPENDIX "A"

THE CORROSION HANDBOOK
(page 125)
(John Wiley & Sons, Inc.)

IRON AND STEEL
by
Herbert H. Uhlig, PhD
(Professor of Metallurgy & Director of
Corrosion Laboratory, MIT, Cambridge, MA)

AQUEOUS MEDIA

Effect of Dissolved Oxygen

"At ordinary temperatures, oxygen and moisture are the basic factors necessary for corrosion of iron in neutral or near neutral media. Both must be present simultaneously because oxygen alone or water free of dissolved oxygen does not corrode iron to any practical extent.

Iron corrodes in natural waters according to equations ...

$$Fe \text{ -- } Fe^{++} + 2e^-$$
$$2H^+ + 1/2\ O_2 \text{ -- } H_2O - 2e^-$$

... at a rate usually proportional to the concentration of dissolved oxygen. Water in contact with iron continues to cause corrosion only until the dissolved oxygen is consumed."

APPENDIX "B"

"CORROSION
CAUSES AND PREVENTION"

by

Frank N. Speller, PhD
(Corrosion Consultant)

(McGraw-Hill Book Co. Inc.)

Chapter 2, Page 9

" 1. At normal temperatures iron will not corrode appreciably in the absence of moisture.

2. The presence of oxygen is usually essential for serious corrosion to take place in ordinary water at room temperature. Dissolved oxygen alone will greatly accelerate corrosion in acid, neutral or slightly alkaline water. In natural waters, the rate of corrosion is almost directly proportional to oxygen concentration if other factors are not changed."

APPENDIX "C"

NACE
BASIC CORROSION COURSE

Chapter 2
(page 2 - 6)

Introduction to Corrosion

by

F. L. LaQue

"The oxygen content of any solution ranks high on the list of facts influencing corrosion of iron and numerous other metals. Elimination of oxygen by deaeration is a potent means of preventing corrosion, as in the case of steam boilers which are operated with completely deaerated feed water."

5. Assembly Bill 1491 (Cunneen)

CALIFORNIA 1997 LEGISLATIVE SERVICE
1997 Portion of 1997-98 Regular Session

Additions are indicated by < < + Text + > >; deletions by < <- * * * -> >. Changes in tables are made but not highlighted.

CHAPTER 808
A.B. No. 1491
ENVIRONMENT--HAZARDOUS WASTES--PETROLEUM UNDERGROUND STORAGE TANKS

AN ACT to amend Sections 25284 and 25299.50 of, and to add Section 25292.3 to, the Health and Safety Code, relating to hazardous substances.

[Approved by Governor October 8, 1997.]

[Filed with Secretary of State October 9, 1997.]

LEGISLATIVE COUNSEL'S DIGEST

AB 1491, Cunneen. Hazardous substances: petroleum underground storage tanks.

(1) Under existing law, with specified exceptions, no person may own or operate an underground storage tank containing hazardous substances unless a permit for its operation has been issued by the local agency to the owner or operator of the tank, or a unified program facility permit has been issued by the local agency to the owner or operator of the unified program facility on which the tank is located. Existing law requires an underground storage tank permit to require compliance with certain design and construction requirements and allows a permit to include a schedule of compliance, when necessary, to allow a reasonable opportunity to comply with certain applicable requirements or regulations.

This bill would delete the provision allowing the permit to include a schedule of compliance and would instead require a permit issued for a petroleum underground storage tank system that meets specified requirements to include an upgrade compliance certificate, as prescribed, that documents that the petroleum underground storage tank system meets those requirements. The bill would require the owner to place the certificate in a conspicuous location that can be readily viewed by any person depositing petroleum into the underground storage tank system.

The bill would require the State Water Resources Control Board, by December 22, 1998, to notify all persons that may deliver petroleum to an underground storage tank of where they can obtain a list of underground storage tank facilities that have been issued an upgrade compliance certificate.

The bill would prohibit any person on or after January 1, 1999, from depositing petroleum into an underground storage tank system unless the underground storage tank system meets those described requirements. The bill would require a person depositing petroleum into such an underground storage tank system to verify that the system meets those requirements by taking one of specified actions.

(2) Under existing law, the Barry Keene Underground Storage Tank Cleanup Trust Fund Act of 1989, every owner of an underground storage tank for which a permit is required is required to pay a specified storage fee for each gallon of petroleum placed in the tank. The fees are required to be deposited in the Underground Storage Tank Cleanup Fund. The money in the fund may be expended by the board, upon appropriation by the Legislature, for various purposes, including the costs of implementing the act, payment of a California regional water quality control board's or local agency's corrective action costs, and the payment of claims to aid owners

and operators of petroleum underground storage tanks who take corrective action to clean up unauthorized releases from those tanks. The board is required to provide a letter of credit authorizing the payment of corrective action costs from the fund to a claimant whose cost estimate for corrective action has been approved by the board.

This bill would allow the board to reallocate to other corrective action claims any funds appropriated in the annual Budget Act for the payment of a corrective action claim that is encumbered pursuant to a letter of credit but is not expended. The bill would require the board to make a report at least once every 3 months to specified committees of the Legislature and to the Director of Finance on the implementation of those provisions.

The people of the State of California do enact as follows:

SECTION 1. Section 25284 of the Health and Safety Code is amended to read:

<< CA HLTH & S § 25284 >>

25284. (a)(1) Except as provided in <<+subdivision+>> (c)<<-* * *->>, no person shall own or operate an underground storage tank unless a permit for its operation has been issued by the local agency to the owner or operator of the tank, or a unified program facility permit has been issued by the local agency to the owner or operator of the unified program facility on which the tank is located.

(2) If the operator is not the owner of the tank, or if the permit is issued to a person other than the owner or operator of the tank, the permittee shall ensure that both the owner and the operator of the tank are provided with a copy of the permit.

(3) If the permit is issued to a person other than the operator of the tank, that person shall do all of the following:

(A) Enter into a written agreement with the operator of the tank to monitor the tank system as set forth in the permit.

(B) Provide the operator with a copy or summary of Section 25299 in the form <<+that+>> the board specifies by regulation.

(C) Notify the local agency of any change of operator.

(b) Each local agency shall prepare a form <<+that+>> provides for the acceptance of the obligations of a transferred permit by any person who is to assume the ownership of an underground storage tank from the previous owner and is to be transferred the permit to operate the tank. That person shall complete the form accepting the obligations of the permit and submit the completed form to the local agency within 30 days <<-* * *->><<+from the date that+>> the ownership of the underground storage tank is to be transferred. A local agency may review and modify, or terminate, the transfer of the permit to operate the underground storage tank, pursuant to the criteria specified in subdivision (a) of Section 25295, upon receiving the completed form.

(c) Any person assuming ownership of an underground storage tank used for the storage of hazardous substances for which a valid operating permit has been issued shall have 30 days <<+from+>> the date of assumption of ownership to apply for an operating permit pursuant to Section 25286 or, if accepting a transferred permit, shall submit to the local agency the completed form accepting the obligations of the transferred permit, as specified in subdivision (b). During the period from the date of application until the permit is issued or refused, the person shall not be held to be in violation of this section.

<<-* * *->>

<<+(d)+>> A permit issued pursuant to this section shall apply and require compliance with all applicable regulations adopted by the board pursuant to Section 25299.3.

<<+(e) A permit issued for a petroleum underground storage tank system that meets the requirements of

Section 25291 or subdivisions (d) and (e) of Section 25292 and related regulations adopted pursuant to Section 25299.3 shall include an upgrade compliance certificate, the color, size, and content of which shall be specified by the board, that documents that the petroleum underground storage tank system meets the requirements of Section 25291 or subdivisions (d) and (e) of Section 25292 and related regulations. The owner shall place the upgrade compliance certificate in a conspicuous location that can be readily viewed by any person depositing petroleum into the underground storage tank system.+ > >

< < +(f) On or before December 22, 1998, the board shall notify all persons that may deliver petroleum to an underground storage tank of where they can obtain a list of underground storage tank facilities that have been issued an upgrade compliance certificate. Local agencies shall maintain a list of underground storage tank facilities that have been issued an upgrade compliance certificate and shall provide this information to anyone requesting it.+ > >

SEC. 2. Section 25292.3 is added to the Health and Safety Code, to read:

< < CA HLTH & S § 25292.3 > >

25292.3. (a) On and after January 1, 1999, no person shall deposit petroleum into an underground storage tank system unless the underground storage tank system meets the requirements of Section 25291 or subdivisions (d) and (e) of Section 25292 and related regulations adopted pursuant to Section 25299.3.

(b) Any person depositing petroleum into an underground storage tank system shall verify that the system meets the requirements of Section 25291 or subdivisions (d) and (e) of Section 25292, and related regulations adopted pursuant to Section 25299.3, by taking one of the following actions:

(1) Viewing the upgrade compliance certificate for the petroleum underground storage tank system displayed pursuant to subdivision (e) of Section 25284.

(2) Obtaining written verification from the local agency that the petroleum underground storage tank system is on a list maintained by a local agency pursuant to subdivision (f) of Section 25284.

(3) Obtaining a correct copy of the upgrade compliance certificate from the owner or operator of the petroleum underground storage tank system.

SEC. 3. Section 25299.50 of the Health and Safety Code is amended to read:

< < CA HLTH & S § 25299.50 > >

25299.50. (a) The Underground Storage Tank Cleanup Fund is hereby created in the State Treasury< <-* * *- > > < < +. The money in the fund+ > > may be expended by the board, upon appropriation by the Legislature, for < <-* * *- > > purposes of this chapter. From time to time, the board may modify existing accounts or create accounts in the fund or other funds administered by the board, which the board determines are appropriate or necessary for proper administration of this chapter.

(b) All of the following amounts shall be deposited in the fund:

(1) Money appropriated by the Legislature for deposit in the fund.

(2) The fees, interest, and penalties collected pursuant to Article 5 (commencing with Section 25299.40).

(3) Notwithstanding Section 16475 of the Government Code, any interest earned upon the money deposited in the fund

(4) Any money recovered by the fund pursuant to Section 25299.70.

(5) Any civil penalties collected by the board or regional board pursuant to Section 25299.76.

< <+(c) Notwithstanding subdivision (a), any funds appropriated by the Legislature in the annual Budget Act for payment of a claim for the costs of a corrective action in response to an unauthorized release, that are encumbered for expenditure for a corrective action pursuant to a letter of credit issued by the board pursuant to subdivision (e) of Section 25299.57, but are subsequently not expended for that corrective action claim, may be reallocated by the board for payment of other claims for corrective action pursuant to Section 25299.57. The board shall report at least once every three months on the implementation of this subdivision to the Senate Committee on Budget and Fiscal Review, the Senate Committee on Environmental Quality, the Assembly Committee on Budget, and the Assembly Committee on Environmental Safety and Toxic Materials, or to any successor committee, and to the Director of Finance.+ > >

CA LEGIS 808 (1997)

END OF DOCUMENT

6. May 14, 1997 letter from Carol Browner, US EPA

EPA United States Environmental Protection Agency

Letter from Carol M. Browner, Administrator, U.S. Environmental Protection Agency, May 14, 1997

Office of Underground Storage Tanks

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 14 1997

THE ADMINISTRATOR

MEMORANDUM

SUBJECT: No Extension of December 1998 Deadline for Upgrading, Replacing, or Closing Underground Storage Tanks

TO: Regional Administrators

Under regulations issued more than eight years ago, owners and operators of underground storage tanks (USTs) have until December 22, 1998 to upgrade, replace, or close USTs that do not meet EPA's technical standards for protection against spills, overfills, and corrosion.

I want you, as well as our State partners and UST owners and operators, to know that EPA does not intend to extend this deadline. While I recognize that there will not be 100 percent compliance by the deadline, extending it would reduce the incentive to comply and would be unfair to the many UST owners and operators who have already complied.

The 1998 requirements are a key element in the ongoing State-EPA effort to prevent groundwater contamination. States have told us that USTs are their most common source of groundwater contamination and that petroleum is the most common contaminant. In many cases, UST releases have resulted in contamination of public or private drinking water supplies.

I know that EPA's Regional Offices and the States have been working with UST owners and operators to encourage compliance in advance of the deadline. I urge you not only to continue these efforts but also to begin working with the States to develop plans for dealing with those owners and operators who fail or refuse to comply with the requirements.

Carol M. Browner

7. Form 399 with authorized original signature

FISCAL IMPACT STATEMENT (REGULATIONS AND ORDERS)

STD 399 (5/86)

STATE OF CALIFORNIA

SEE SAM SECTION 6055 FOR INSTRUCTIONS

DEPARTMENT	CONTACT PERSON	PHONE NUMBER
State Water Resources Control Board	Barbara Wightman	227-4318

TITLE/DESCRIPTION OF REGULATION/ORDER

Title 23, Division 3, Chapter 16 - Underground Storage Tank Regulations

A. FISCAL EFFECT ON LOCAL GOVERNMENT (Indicate appropriate boxes 1 through 6 and complete if necessary)

☐ 1 Additional expenditures of approximately $ _____ annually which are reimbursable by the State pursuant to Section 6 of Article XIII B of the California Constitution and Sections 17500 et seq. of the Government Code. Funding for this reimbursement

- ☐ a. is provided in (Item _____, Budget Act of _____) or (Chapter _____, Statutes of _____)
- ☐ b will be requested in the _____ (FISCAL YEAR) Governor's Budget for appropriation in Budget Act of _____

☐ 2. Additional expenditures of approximately $ _____ annually which are not reimbursable by the State pursuant to Section 6 of Article XIII B of the California Constitution and Sections 17500 et seq. of the Government Code because this regulation

- ☐ a. implements the Federal mandate contained in _____,
- ☐ b implements the court mandate set forth by the _____ court in the case of _____ vs. _____;
- ☐ c implements a mandate of the people of this State expressed in their approval of Proposition No. _____ at the _____ (DATE) election;
- ☐ d is issued only in response to a specific request from the _____, which is/are the only local entity(s) affected;
- ☐ e is more appropriately financed from the _____ (FEES, REVENUE, ETC.) authorized by Section _____ of the _____ Code;
- ☐ f provides for savings to each affected unit of local government which will, at a minimum, offset any additional costs to each such unit.

☐ 3 Savings of approximately $ _____ annually.

☐ 4 No additional costs or savings because this regulation makes only technical, nonsubstantive or clarifying changes to current law and regulations.

☒ 5 No fiscal impact exists because this regulation does not affect any local entity or program

☐ 6 Other

B. FISCAL EFFECT ON STATE GOVERNMENT (Indicate appropriate boxes 1 through 4 and complete if necessary)

☐ 1 Additional expenditures of approximately $ _____ annually. It is anticipated that State agencies will:

- ☐ a be able to absorb these additional costs within their existing budgets and resources.
- ☐ b request supplemental funding by means of "Budget Change Proposals" for the _____ fiscal year.

☐ 2 Savings of approximately $ _____ annually

☒ 3 No fiscal impact exists because this regulation does not affect any State agency or program.

☐ 4 Other

C. FISCAL EFFECT ON FEDERAL FUNDING OF STATE PROGRAMS (Indicate appropriate boxes 1 through 4 and complete if necessary)

☐ 1 Additional expenditures of approximately $ _____ annually.

☐ 2. Savings of approximately $ _____ annually.

☒ 3 No fiscal impact exists because this regulation does not affect any federally funded State program or agency.

☐ 4 Other

SIGNATURE	TITLE
Dale Claxton	Deputy Director

AGENCY SECRETARY APPROVAL/CONCURRENCE — DATE: December 22, 1997

PROGRAM BUDGET MANAGER - DOF

DEPARTMENT OF FINANCE APPROVAL/CONCURRENCE — DATE:

8. Resolution No. 97-106

STATE WATER RESOURCES CONTROL BOARD MEETING

SACRAMENTO, CALIFORNIA

November 18, 1997

ITEM 9: DEFINITION OF MOTOR VEHICLE FUEL TANK - EMERGENCY RULEMAKING AMENDMENT TO TITLE 23, DIVISION 3, CHAPTER 16, SECTION 2611, CALIFORNIA CODE OF REGULATIONS (CCR), UNDERGROUND STORAGE TANK (UST) REGULATIONS RELATING TO THE DEFINITION OF MOTOR VEHICLE FUEL (MVF) TANKS.

DISCUSSION: The State Water Resources Control Board (SWRCB) is being asked to consider amending a regulation in Chapter 16, which covers the design, construction, installation, testing, monitoring, and upgrading of USTs. Unless the amendment is adopted on an emergency basis, there will not be enough time before the deadline discussed below for tank owners to take advantage of the amended regulation. The proposed amendment will modify the definition of MVF tanks to include all USTs containing liquid petroleum products without regard to the end use of the product.

By December 22, 1998, USTs must meet improved construction standards. MVF tank owners may either replace or upgrade their existing tanks - the method of complying is up to the tank owner. However, owners of non-MVF tanks must install new, double-walled tanks because of the greater potential for harm from leaks and spills.

Article 1, Section 2611 CCR, defines a MVF tank as one that "contains a petroleum product which is intended to be used primarily to fuel motor vehicles or engines." By specifying motor vehicles and engines, other uses for the petroleum are excluded from the definition unnecessarily. For example, the exclusion from the definition has a direct effect on hospitals with USTs used for fueling boilers to heat water. Hospitals, like all other owners of USTs, must meet the December 22, 1998 deadline. Because the tanks are not MVF tanks as defined, they must be replaced rather than retrofitted (Section 2662 CCR). Replacing is more time consuming and expensive. It is unnecessary to require replacement of petroleum USTs used to fuel boilers because they pose no greater environmental risk than those petroleum USTs used for other purposes.

By amending Section 2611 CCR, USTs storing any petroleum product will be regulated uniformly without consideration for the use of the product in the UST. The amendment will not affect local UST programs. It may have an impact on decisionmaking by California's hospital administrators regarding compliance with the deadline.

The amended definition will also specify that used oil tanks are not included in the definition of MVF tanks. Used oil tanks are regulated under the more stringent requirements of other hazardous substance tanks. The specific exclusion in the amended regulation is stated only to eliminate confusion within the regulated community.

POLICY ISSUE: Should the SWRCB amend Section 2611 of Title 23, Division 3, Chapter 16, CCR, as proposed?

FISCAL IMPACT: None

RWQCB IMPACT: None

STAFF RECOMMENDATION: Amend Section 2661 CCR to include all petroleum USTs in the definition of MVF tank and to specifically exclude used oil tanks from the definition.

October 27, 1997 DRAFT

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 97-106

EMERGENCY RULEMAKING TO AMEND
THE DEFINITION OF
MOTOR VEHICLE FUEL TANKS

WHEREAS:

1. Section 25299.3 of Chapter 6.7, Health and Safety Code (H&SC) authorizes the SWRCB to adopt regulations to implement the provisions of Chapter 6.7 relating to underground storage tanks.

2. Section 2611 CCR defines a motor vehicle fuel (MVF) tank as, "... an underground storage tank that contains a petroleum product which is intended to be used primarily to fuel motor vehicles or engines."

3. Those petroleum USTs used for purposes other than fueling engines currently fall under the category of "other hazardous substance" tanks and have more stringent requirements for meeting improved construction standards by December 22, 1998 (Section 2662 CCR).

4. Amending the definition of MVF tank will allow all USTs containing petroleum products to be regulated uniformly.

5. Used oil tanks should continue to be regulated under the more stringent requirements of other hazardous substance tanks.

6. Specifiying that used oil tanks are not motor vehicle fuel tanks will eliminate confusion within the regulated community.

7. Unless the regulation is adopted on an emergency basis, tank owners will not have adequate time to take advantage of the amendment.

THEREFORE BE IT RESOLVED THAT:

The State Water Resources Control Board adopts as emergency regulations the amendments to Section 2611, Chapter 16, Title 23 of the California Code of Regulations. The text of Section 2611 is amended as follows: "Motor vehicle fuel tank" means an underground storage tank that contains a petroleum product ~~which is intended to be used primarily to fuel motor vehicles or engines~~. The definition does not include underground storage tanks that contain used oil.

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on November 18, 1997.

Maureen Marché
Administrative Assistant to the Board

9. Resolution No. 97-107

STATE WATER RESOURCES CONTROL BOARD MEETING

SACRAMENTO, CALIFORNIA

November 18, 1997

ITEM 10: UPGRADING UNDERGROUND STORAGE TANKS - EMERGENCY RULEMAKING AMENDMENT TO TITLE 23, CHAPTER 16, CALIFORNIA CODE OF REGULATIONS (CCR) *UNDERGROUND STORAGE TANK (UST) REGULATIONS RELATING TO THE USE OF* BLADDERS TO UPGRADE USTS BY THE DECEMBER 22, 1998 DEADLINE.

DISCUSSION: The State Water Resources Control Board (SWRCB) is being asked to consider amending regulations in Chapter 16 relating to the use of interior lining and bladders to upgrade USTs. Unless the amendment is adopted on an emergency basis, there will not be enough time before the deadline discussed below for tank owners to take advantage of the amended regulation.

In order to ensure their tanks meet standards which go into effect on December 22, 1998, owners of petroleum tanks may choose to either upgrade or replace their tanks. Section 2662(c) CCR authorizes tank owners to upgrade by having a lining sprayed onto the interior surface of their tanks to reinforce the tank walls and to protect against interior corrosion. This section also authorizes the installation of a bladder inside the tank as an upgrade option; however, Section 2664 requires the tank to be lined before installation of the bladder.

Bladder manufacturers believe the requirement to pre-line the tank is superfluous, adding unnecessary expense to the upgrade process and discouraging tank owners from using their product without providing a benefit in return. They point out that the bladder installation process includes corrosion prevention measures and the monitoring method provides superior protection against releases.

Available information from the U.S. Environmental Protection Agency and corrosion engineers, as well as information from the industry, supports the conclusion that pre-lining a tank is not necessary if the following provisions are included: the tank must have external cathodic protection, the tank walls must be free of thin areas or flaws, and the tank's interior surface must be smooth to ensure that the bladder is not likely to be punctured.

POLICY ISSUE: Should the SWRCB amend Sections 2662(c) and 2664(b) CCR and repeal Section 2664(c) CCR of Title 23, Division 3, Chapter 16, CCR as proposed?

FISCAL IMPACT: None

RWQCB IMPACT: None

STAFF RECOMMENDATION: Amend Sections 2662(c) and 2664(b) and repeal Section 2664(c) CCR to eliminate the requirement for lining a tank before installing a bladder system and to require that bladder systems have the protections listed above.

November 10, 1997 DRAFT

STATE WATER RESOURCES CONTROL BOARD

RESOLUTION NO. 97 -

EMERGENCY RULEMAKING TO AMEND THE REQUIREMENTS FOR UPGRADING UNDERGROUND STORAGE TANKS

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 97 - 107

EMERGENCY RULEMAKING TO AMEND
THE REQUIREMENTS FOR UPGRADING
UNDERGROUND STORAGE TANKS

WHEREAS:

1. Section 25299.3 of Chapter 6.7, Health and Safety Code (H&SC) authorizes the SWRCB to adopt regulations to implement the provisions of Chapter 6.7 relating to underground storage tanks (USTs).

2. Section 25292(d) H&SC requires that by December 22, 1998, all USTs installed before January 1, 1984 be upgraded or replaced to prevent releases due to corrosion or spills and overfills.

3. Sections 2662(c) California Code of Regulations (CCR) authorizes tank owners to use either interior lining or interior lining and bladders to upgrade their USTs. Section 2664(c) requires lining USTs before installing bladders.

4. Available information supports the conclusion that bladders alone, without interior lining, provide sufficient protection against releases and that the benefit from adding interior lining is not sufficient to warrant the requirement.

5. Requiring pre-lining of a UST discourages tank owners from installing bladders when, in fact, bladder systems are at least as protective of the environment as lined systems.

6. Unless the regulations are adopted on an emergency basis, tank owners will not have adequate time to take advantage of the amendments.

THEREFORE BE IT RESOLVED THAT:

The State Water Resources Control Board adopts as emergency regulations the proposed amendments to Sections 2662 and 2664, Chapter 16, Title 23 of the California Code of Regulations. Specifically, Section 2662(c)(2) shall read: "Bladder system, ~~interior lining,~~ and cathodic protection:" Section 2662(c)(2)(B) is repealed: "~~When upgrading a fiberglass or clad tank with a bladder system, interior lining and cathodic protection are not required if a special inspector and the local agency determine they are not necessary~~."; Section 2664 (b) shall have the following language added: "(5) If the underground storage tank is constructed of steel, cathodic protection shall be installed in accordance with Section 2635(a)(2)(A) and, before installing a bladder system, the underground storage tank shall meet the requirements in Section

2663(b)(2), except that abrasive blasting is only required to the extent deemed necessary by manufacturers' specifications, or the special inspector, to assess the structural integrity of the underground storage tank; (6) The bladder installer shall certify in writing to the local agency that sufficient measures have been taken to minimize or eliminate the potential for the underground storage tank or interstitial monitoring system components to puncture the bladder; (7) Before installing a bladder, thin areas or other flaws in the underground storage tank walls which need additional reinforcing shall be reinforced in accordance with Section 2661(d); and (8) If required by manufactures specifications, or the special inspector, the underground storage tank shall be lined in accordance with Section 2663 prior to installation of the bladder, except only to the thickness deemed necessary by the more stringent requirement of the manufacturers' specifications, or the special inspector. Section 2664(c) is repealed: "~~Before installing a bladder system in a steel tank, the tank interior shall be lined in accordance with section 2663 and shall be provided with cathodic protection as required by section 2635(a)(2)(A). The periodic inspection specified in subsection 2663(h) is not required unless the bladder system is removed for repairs or replacement. Unless the local agency determines otherwise, the limiting criteria specified in section 2663(b)(2)(B)(i) through (iv) do not apply if the lining is 250 mil fiberglass reinforced plastic or equivalent.~~"

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on November 18, 1997.

Maureen Marché
Administrative Assistant to the Board

II. Final Regulations (April 1998)

1. Notice of, Proposed Rulemaking

Index to Rulemaking File Title 23, Division 3, Chapter 16 Underground Storage Tank Regulations 1997/1998 Amendments

TITLE 23. STATE WATER RESOURCES CONTROL BOARD

NOTICE IS HEREBY GIVEN that the State Water Resources Control Board (SWRCB) will consider for adoption the proposed amendments to the California underground storage tank regulations described in this notice, at its regularly scheduled monthly Board meeting at 10:30 a.m., on April 23, 1998, First-Floor Hearing Room, Paul R. Bonderson Building, 901 P Street, Sacramento. The regularly scheduled information workshop for this meeting will be held on April 1, 1998. Any interested person or such person's duly authorized representative may present written statements, arguments or contentions relevant to the action described in this notice.

Any written statements, arguments or contentions must be received by the State Water Resources Control Board, Division of Clean Water Programs, Underground Storage Tank Program, 2014 "T" Street, P.O. Box 944212, Sacramento, CA 94244-2120, by 5:00 p.m. on April 6, 1998, which is hereby designated as the close of the written comment period. Written comments, arguments or contentions sent by mail or hand-delivered are requested (but not required) to be submitted in triplicate. Comments by FAX (916-227-4349) must be received before 5:00 p.m. on the last day of the public comment period. These comments will be discussed and considered at the April 23, 1998 Board meeting.

The proposed regulatory amendments were adopted as emergency regulations by the SWRCB at its meeting on November 18, 1997, and these emergency regulations became effective for a 120 day period on December 26, 1997, after approval as emergency regulations by the Office of Administrative Law (OAL). Unless the proposed amendments are adopted by the SWRCB at the April 1998 meeting, or an extension of the emergency period is requested by the SWRCB and approved by OAL, the proposed amendments will expire on April 26, 1998.

AUTHORITY AND REFERENCE

Authority: Health and Safety Code (H&SC) Section 25299.3(a)

Reference: H&SC Sections 25292, 25292.1, 25280(b)

CONTACT

Inquiries concerning the action described in this notice may be directed to Charles NeSmith of the Division of Clean Water Programs at (916) 227-4377.

INFORMATIVE DIGEST

The State Water Resources Control Board is proposing two changes in its Underground Storage Tank (UST) Regulations aimed at 1) making state UST rules more consistent with

federal rules (40 CFR 280) and 2) increasing options available to tank owners for complying with a state and federally mandated deadline for upgrading their USTs. The upgrade deadline, December 22, 1998, is specified in federal rules at 40 CFR 280.21. State law and rules specify the same upgrade deadline. [Health and Safety Code Section 25292 and Title 23, Division 3, Chapter 16, Section 2662, California Code of Regulations (CCR)]. Under current state rules, the owner must either replace his UST system with a new system meeting current double containment and corrosion protection standards [Section 2662(b)] or optionally, if and only if it is a motor vehicle fuel (MVF) tank, upgrade it by adding cathodic protection and interior epoxy lining, overfill and spill prevention equipment and other appurtenances or by adding cathodic protection, epoxy lining and an interior flexible bladder, overfill and spill prevention equipment and other appurtenances [Section 2662(c].

1. Change in definition of Motor Vehicle Fuel Tank (Section 2611)

   Current upgrade rules divide regulated UST facilities into two categories – those storing motor vehicle fuel and those storing other hazardous substances (Section 2662). If the tank is a MVF tank, it may be upgraded or replaced. However, if it is a non-MVF tank, it must be excavated and replaced with a new system, which is more costly, time consuming, and invasive to the operation of the business.

   Note: Section 2662 does not state that non-MVF tanks must be replaced; it states that non-MVF tanks must be "retrofitted with secondary containment." However, this is neither economically feasible, nor an accepted industry practice. Therefore, in order to provide secondary containment required by Section 2662, the only choice is to replace the non-MVF tank with a new double-wall system.

   Non-MVF tanks must meet stricter construction and monitoring standards (replacement rather than retrofitting) because they generally contain products that are more hazardous to the public health and the environment.

   Federal UST rules similarly establish two upgrade standards based upon whether the tank stores "petroleum" or other "hazardous substance" (see definitions at 40 CFR 280.12). The federal upgrade option [40 CFR 280.21], while less stringent than the state upgrade rules (i.e., it requires interior lining or cathodic protection and doesn't address bladders), nevertheless applies to a broader category of substances. All tanks storing petroleum products may be upgraded. Petroleum includes motor fuels, jet fuels, distillate fuel oils, lubricants, petroleum solvents and used oils. Federal "hazardous substance" USTs (like state regulated non-MVF tanks) must be replaced with secondary containment (40 CFR 280.42).

   The state definition of MVF tank is unnecessarily narrow and limits options available to owners of California's underground storage tank (UST) systems for meeting upgrade requirements. Existing regulations define a MVF tank as one ". . .that contains a

petroleum product which is intended to be used primarily to fuel motor vehicles or engines."

This means that if a steel tank containing a given petroleum product - *e.g. diesel* - is used to fuel an emergency generator (engine) at a hospital, the tank is a MVF tank and may be upgraded. However, if the same tank is used to heat the hospital's water supply, the tank would not meet the definition and would have to be replaced at considerable added cost, facility down-time and construction impact.

The proposal would expand the definition of MVF to match the federal petroleum definition, with the exception of "used oil". In California, used oil is defined as a hazardous waste, which included in the class of "other hazardous substance", [Health and Safety Code Section 25250.1(a)(1)] and should, therefore, not be covered by the MVF definition. The expanded definition would allow tanks storing heating oil, fresh lubricating oil and other petroleum products, which pose an equal or lower risk to the environment as gasoline (a MVF), to be upgraded instead of having to be replaced.

2. Delete Requirement for Mandatory Interior Lining on Bladder Upgrades (Sections 2662 & 2664)

Under existing regulations, tank owners who choose to upgrade their steel USTs must add an epoxy lining to the inside of the tank and fit the tank with cathodic protection. They also have the option, but are not required to, install a bladder system inside the tank, but only after interior lining has been installed. In a 1994 rulemaking which implemented the standards for upgrading tanks in section 2664, the requirement to combine lining with bladder installation was made because of the concern that internal corrosion might threaten the structural integrity of the steel tank.

Bladders are flexible polyvinyl-chloride (PVC) containers similar to the shape and size of a tank. They are installed within the UST to provide primary containment of stored petroleum while the existing UST, or host tank, provides the secondary containment. The space between the existing tank and the bladder is monitored by maintaining a continuous vacuum. If the vacuum pressure changes, an audible and visual alarm is triggered.

A representative from a bladder manufacturing company has requested in writing the recission of the lining requirement as a condition to bladder installation, declaring that the continuous vacuum would prevent significant internal corrosion. (A copy of the letter is attached). The representative stated that the benefit of the secondary containment and monitoring provided by bladder systems is a safety feature not provided by interior-lined steel tanks. Owners are discouraged from installing bladders because of the considerable cost of adding the lining (for a typical 10,000 gallon tank, the added cost of the lining would be approximately $5,000).

Based on information in the rulemaking record, the SWRCB has determined that interior lining is not necessary for all bladder installations in order to protect against internal corrosion. Additionally the SWRCB has determined that, due to the secondary containment and interstitial monitoring features of bladder systems, the level of protection provided by bladder systems is at least as high as that provided by lining only.

The federal rules are silent on the use of bladders. To use a bladder system in a tank upgraded under the federal rules then, one would only have to add interior lining or cathodic protection, but not both. The current California rules do require both, and the proposal, by eliminating the internal lining requirement, would cause California rules to become more consistent with federal rules.

The effects of the proposed amendments will be:

1. The expansion of the definition of a MVF tank will allow approximately the same class of tanks under the state and federal rules to be eligible for the less costly upgrade options. The notable exception would be used oil. Additionally, the expanded definition of MVF tank means more tanks storing petroleum can be upgraded instead of being replaced.

2. The recission of the interior lining requirement for bladder installations will allow tank owners to install bladders with cathodic protection only, making the state and federal requirements for tanks with bladders essentially the same, even though the federal rules are silent on bladders.

3. Finally, and most importantly, tank owners will have more options for meeting the upgrade requirements. Increased options means lower costs, increased availability of suppliers and contractors, less impact to business operations (a bladder installation can be completed in two days vs. two weeks or more for a new installation), and overall higher compliance. Higher compliance means fewer leaking tanks impacting groundwater. Upgrading is typically in the range of $20,000 per tank vs. $50,000 - $80,000 for a new tank. Bladders become a more cost effective option because the interior lining (typical cost - $5,000) has been deleted. Rescinding the requirement to line a tank before installing a bladder in section 2664(b) will remove an unnecessary, cost prohibitive step in the upgrading process with no compromise of the protection of the public health and the environment. While the proposed amendments would eliminate the blanket requirement to line all bladder installations, a provision is included in section 2664(b)(5) which does require interior lining where it is recommended by either manufacturers' specifications or the special inspector who evaluates the structural integrity of the tank.

Without these changes, owners who might otherwise decide to go out of business and walk away from their tanks because they cannot meet replacement costs may find they are able to upgrade their systems by complying with the proposed regulations. Abandoned tanks may

contain product which could leak, causing public health and environmental problems. Abandoned tanks also become the responsibility of the state to remove and clean up.

DETERMINATIONS

The SWRCB has determined that the proposed amendments would not impose a mandate on local agencies or school districts nor are there any costs for which reimbursement is required by Part 7 (commencing with Section 17500) of Division 4 of the Government Code, nor impose any non-discretionary costs or savings on local agencies, nor result in any cost-impact on private persons or businesses. Additionally, the proposed amendments will not result in any cost or savings to any state agency or federal funding to the state; or,

1. Significantly affect the creation or elimination of jobs within the State of California.

2. Significantly affect the creation of new businesses or the elimination of existing businesses within the State of California.

3. Significantly affect the expansion of business currently doing business within the State of California.

4. Significantly affect the cost of housing within the State of California.

The SWRCB has also determined that the proposed action will not have a significant adverse economic impact on businesses, including the ability of California businesses to compete with businesses in other states. Additionally, the proposed amendments will not have an affect on small businesses. This is because the main effect of the proposed amendments is to simply provide tank owners with increased options in meeting the December 22, 1998 underground storage tank upgrade deadline.

AVAILABILITY OF STATEMENT OF REASONS AND TEXT OF REGULATIONS

The State Water Resources Control Board has prepared for public review: 1) an initial statement of reasons for the proposed amendments; 2) a rulemaking record which contains all of the information upon which the proposed amendments are based, and 3) the text of the proposed amendments. A copy of the initial statement of reasons, and a copy of the text and the express terms of the proposed amendments are available upon request by writing to the SWRCB, Division of Clean Water Programs at the address noted above. This address is also the location of public records, including reports, documentation, and other material related to the proposed amendments.

AVAILABILITY OF CHANGED OR MODIFIED TEXT

The full text of any regulatory amendments which are changed or modified from the express terms of the proposed action will be made available by the SWRCB, Division of Clean Water Programs, at least 15 days in advance prior to the date on which the Board adopts, amends, or repeals the resulting regulation.

ADDITIONAL STATEMENTS AND COMMENTS

In accordance with Government Code Section 11346.5(a)(12) the State Water Board must determine that no alternative considered by the SWRCB would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.

The SWRCB has complied with all matters prescribed by statute applicable to the SWRCB regarding the proposed action.

Any interested person or his duly authorized representative may request, no later than 15 days prior to the close of the written comment period, a public hearing pursuant to Government Code Section 11346.8.

Reasonable accommodation or sign language interpreting services at a public hearing will be provided upon request. Such request should be made not later than 15 days prior to the close of the written comment period.

A. Notice Publication/Regulations Submission (Form 400)

STATE OF CALIFORNIA--OFFICE OF ADMINISTRATIVE LAW

NOTICE PUBLICATION/REGULATIONS SUBMISSION

(See instructions on reverse)

For use by Secretary of State only

STD. 400 (REV. 3-92) FMC

OAL FILE NUMBERS	NOTICE FILE NUMBER	REGULATORY ACTION NUMBER	EMERGENCY NUMBER	PREVIOUS REGULATORY ACTION NUMBER
	Z98021003			

For use by Office of Administrative Law (OAL) only

RECEIVED FOR FILING	PUBLICATION DATE
FEB 10 '98	FEB 20 '98

Office of Administrative Law

NOTICE | REGULATIONS

AGENCY | AGENCY FILE NUMBER *(If any)*

A. PUBLICATION OF NOTICE *(Complete for publication in Notice Register)*

1 SUBJECT OF NOTICE	TITLE(S)	FIRST SECTION AFFECTED	2 REQUESTED PUBLICATION DATE
Underground Storage Tanks	23	2611	February 20, 1998

3. NOTICE TYPE	4. AGENCY CONTACT PERSON	TELEPHONE NUMBER
[X] Notice re Proposed Regulatory Action [ ] Other	Charles Nesmith	(916) 227-4377

OAL USE ONLY	ACTION ON PROPOSED NOTICE	NOTICE REGISTER NUMBER	PUBLICATION DATE
	[ ] Approved as Submitted [X] Approved as Modified [ ] Disapproved/ Withdrawn	98,082	2/20/98

B. SUBMISSION OF REGULATIONS *(Complete when submitting regulations)*

1. SPECIFY CALIFORNIA CODE OF REGULATIONS TITLE(S) AND SECTION(S) *(Including title 26, if toxics-related)*

SECTIONS AFFECTED	ADOPT
	AMEND
TITLE(S)	REPEAL

2. TYPE OF FILING

[ ] Regular Rulemaking (Gov. Code, § 11346) [ ] Resubmittal [ ] Emergency (Gov Code, § 11346.1(b)) [ ] Resubmittal of disapproved or withdrawn emergency filing

[ ] prior to, or within 120 days of, the effective date of the regulations listed above.

[ ] Print Only [ ] Changes Without Regulatory Effect (Cal. Code Regs., title 1, § 100) [ ] Other (specify)

3 DATE(S) OF AVAILABILITY OF MODIFIED REGULATIONS AND/OR MATERIAL ADDED TO THE RULEMAKING FILE *(Cal Code Regs title I, §§ 44 and 45)*

4 *EFFECTIVE DATE OF REGULATORY CHANGES (Gov. Code § 11346.2)*

[ ] Effective 30th day after filing with Secretary of State [ ] Effective on filing with Secretary of State [ ] Effective other *(Specify)*

5 CHECK IF THESE REGULATIONS REQUIRE NOTICE TO, OR REVIEW, CONSULTATION, APPROVAL OR CONCURRENCE BY, ANOTHER AGENCY OR ENTITY

[ ] Department of Finance (Form STD. 399) [ ] Fair Political Practices Commission [ ] State Fire Marshal

[ ] Other (Specify)

6 CONTACT PERSON	TELEPHONE NUMBER

7

I certify that the attached copy of the regulation(s) is a true and correct copy of the regulation(s) identified on this form, that the information specified on this form is true and correct, and that I am the head of the agency taking this action, or a designee of the head of the agency, and am authorized to make this certification.

SIGNATURE OF AGENCY HEAD OR DESIGNEE	DATE
Walt Pettit	2-10-98

TYPED NAME AND TITLE OF SIGNATORY

Walt Pettit, Executive Director

B. Initial Statement of Reasons

INITIAL STATEMENT OF REASONS

1998 AMENDMENTS TO CALIFORNIA UNDERGROUND STORAGE TANK REGULATIONS SECTIONS 2611, 2662, AND 2664

SECTION 2611: DEFINITION OF "MOTOR VEHICLE FUEL TANK"

The state definition of MVF tank is unnecessarily narrow and limits options available to owners of California's underground storage tank (UST) systems for meeting upgrade requirements. Existing regulations define a MVF tank as one ". . .that contains a petroleum product which is intended to be used primarily to fuel motor vehicles or engines."

This means that if a steel tank containing a given petroleum product - *e.g. diesel* - is used to fuel an emergency generator (engine) at a hospital, the tank is a MVF tank and may be upgraded. However, if the same tank is used to heat the hospital's water supply, the tank would not meet the definition and would have to be replaced at considerable added cost, facility down-time and construction impact.

The proposal would expand the definition of MVF to match the federal petroleum definition, with the exception of "used oil". In California, used oil is defined as a hazardous waste, which included in the class of "other hazardous substance", [Health and Safety Code Section 25250.1(a)(1)] and should, therefore, not be covered by the MVF definition. The expanded definition would allow tanks storing heating oil, fresh lubricating oil and other petroleum products, which pose an equal or lower risk to the environment as gasoline (a MVF), to be upgraded instead of having to be replaced.

SECTIONS 2662 AND 2664: BLADDER SYSTEMS

Under existing regulations, tank owners who choose to upgrade their steel USTs must add an epoxy lining to the inside of the tank and fit the tank with cathodic protection. They also have the option, but are not required to, install a bladder system inside the tank, but only after interior lining has been installed. In a 1994 rulemaking which implemented the standards for upgrading tanks in section 2664, the requirement to combine lining with bladder installation was made because of the concern that internal corrosion might threaten the structural integrity of the steel tank.

Bladders are flexible polyvinyl-chloride (PVC) containers similar to the shape and size of a tank. They are installed within the UST to provide primary containment of stored petroleum while the existing UST, or host tank, provides the secondary containment. The space between the existing tank and the bladder is monitored by maintaining a continuous vacuum. If the vacuum pressure changes, an audible and visual alarm is triggered.

A representative from a bladder manufacturing company has requested in writing the recission of the lining requirement as a condition to bladder installation, declaring that the continuous vacuum would prevent significant internal corrosion (Paul Schobert, H.T. Tecnologies,

August 8, 1997). The representative stated that the benefit of the secondary containment and monitoring provided by bladder systems is a safety feature not provided by interior-lined steel tanks. Owners are discouraged from installing bladders because of the considerable cost of adding the lining (for a typical 10,000 gallon tank, the added cost of the lining would be approximately $5,000)

Based on information in the rulemaking record, including information from the U.S. EPA (pre-amble to the Federal Regulations) and a report prepared by a member of the National Association of Corrosion Engineers ("Corrosion Control, UST Flexible Fitted Tank", Joseph Lehmann, July 26, 1997), the SWRCB has determined that interior lining is not necessary for all bladder installations in order to protect against internal corrosion. Additionally the SWRCB has determined that, due to the secondary containment and interstitial monitoring features of bladder systems, the level of protection provided by bladder systems is at least as high as that provided by lining only.

The federal rules are silent on the use of bladders. To use a bladder system in a tank upgraded under the federal rules then, one would only have to add interior lining or cathodic protection, but not both. The current California rules do require both, and the proposal, by eliminating the internal lining requirement, would cause California rules to become more consistent with federal rules.

C. Rulemaking Index

Index to Rulemaking File Title 23, Division 3, Chapter 16 Underground Storage Tank Regulations 1997/1998 Amendments

Index to Rulemaking File
Title 23, Division 3, Chapter 16
Underground Storage Tank Regulations
1997/1998 Amendments

I. Emergency Rulemaking (December 1997)

1. Informative Digest
2. Proposed text
3. Letter from Paul Schobert, H.T. Technologies, requesting a rescission of the requirement to install interior coating before installing a bladder
4. Report by H.T. Technologies LLC
5. Assembly Bill 1491 (Cunneen)
6. May 14, 1997 letter from Carol Browner, US EPA
7. Form 399 with authorized original signature
8. Resolution No. 97-106
9. Resolution No. 97-107

II. Final Regulations (April 1998)

1. Notice of, Proposed Rulemaking

   A. Notice Publication/Regulations Submission (Form 400)
   B. Initial Statement of Reasons
   C. Rulemaking Index

2. Proposed Amended Regulations

   A. 45-Day Notice
   B. Statement of Mailing
   C. Written Comments, SWRCB Response, All Related Documents
   D. Petition to Amend Regulations

3. State Water Resources Control Board (SWRCB) Action

   A. Resolutions Adopting Amended Regulations
   B. Tape Transcript of SWRCB Hearing (inside cover)

4. Final Rulemaking Documents

   A. Certification Statement - April 16, 1998 (pursuant to Gov. Code 11346.1 subdivision (e))
   B. Final Statement of Reasons
   C. Fiscal Impact Statement
   D. Mandate on local Agencies or School Districts

5. Final Text of Amended Regulations (without underline and strikeout)

6. Final Certificate of Emergency Amendments

DECLARATION

The foregoing index represents the rulemaking file of the subject proposed regulations of the State Water Resources Control Board, Division of Clean Water Programs, Underground Storage Tank Program. The rulemaking file as submitted is complete. The rulemaking record for these regulations was closed at 5:00 p.m. on April 16, 1998.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge. Executed at Sacramento, California on 4/17, 1998.

Harry M. Schueller, Chief
Division of Clean Water Programs
State Water Resources Control Board

2. Proposed Amended Regulations

PROPOSED TEXT

1998 AMENDMENTS TO CALIFORNIA UNDERGROUND STORAGE TANK REGULATIONS SECTIONS 2611, 2662, AND 2664

§ 2611. Additional Definitions.

"Motor vehicle fuel tank" means an underground storage tank that contains a petroleum product ~~which is intended to be used primarily to fuel motor vehicles or engines~~. The definition does not include underground storage tanks that contain used oil.

Authority: Health and Safety Code 25299.3, 25299.7
Reference: Health and Safety Code 25281, 25282, 25299.5(a); 40 CFR 280.10, 280.12

§ 2662. Requirements for Upgrading Underground Storage Tanks

(c)(2). Bladder system, ~~interior lining,~~ and cathodic protection -

~~(A)~~ Bladder systems shall be installed in accordance with the requirements of section 2664.

~~(B). When upgrading a fiberglass or clad tank with a bladder system, interior lining and cathodic protection are not required if a special inspector and the local agency determine they are not necessary.~~

Authority: Health and Safety 25299.3, 25299.7
Reference: Health and Safety 25291 and 25296 and 40 CFR 280.1

§ 2664. Requirements for Using Bladder Systems

(b) Materials used in the bladder system and in the installation process shall be approved by an independent testing organization based on voluntary consensus standards, an industry code, or engineering standard for the applicable use of the bladder system. Evidence of this approval shall be provided to the local agency before the local agency authorizes the installation. The following conditions shall be met:

(1) The bladder system shall be installed under the direct supervision of a representative of the bladder system fabricator or a contractor certified by the fabricator.

(2) The entire interstitial space between the tank and the bladder shall be monitored in accordance with subsection 2632(c)(2).

(3) Materials used in the bladder system shall be product-tight and compatible with the substance stored.

(4) The bladder system shall include an internal striker plate (wear plate) which meets the requirements of section 2631(c).

(5) If the underground storage tank is constructed of steel, cathodic protection shall be installed in accordance with section 2635(a)(2)(A) and, before installing a bladder system, a special inspector shall certify that the underground storage tank has sufficient structural integrity to seal the interstitial space between the bladder and the underground storage tank and provide secondary containment. The special inspector shall make this certification by entering and inspecting the entire interior surface of the tank and shall base this certification upon the set of procedures and criteria specified in 2663(b)(2), except that abrasive blasting is only required to the extent deemed necessary by manufacturers specifications, or the special inspector, to assess the structural integrity of the underground storage tank.

(6) The bladder installer shall certify in writing to the local agency that sufficient measures have been taken to minimize or eliminate the potential for the underground storage tank or interstitial monitoring system components to puncture the bladder.

(7) Before installing a bladder, thin areas or other flaws in the underground storage tank walls that need additional reinforcing shall be reinforced in accordance with section 2661(d).

(8) If required by manufacturers' specifications or the special inspector, the underground storage tank shall be lined in accordance with section 2663 prior to installation of the bladder except only to the thickness deemed necessary by the more stringent requirement of the manufacturers' specifications or the special inspector.

~~(c). Before installing a bladder system in a steel tank, the tank interior shall be lined in accordance with section 2663 and shall be provided with cathodic protection as required by section 2635(a)(2)(A). The periodic inspection specified in subsection 2663(h) is not required unless the bladder system is removed for repairs or replacement. Unless the local agency determines otherwise, the limiting criteria specified in section 2663(b)(2)(B)(i) through (iv) do not apply if the lining is 250 mil fiberglass reinforced plastic or equivalent.~~

Authority: Health and Safety Code 25299.3, 25299.7
Reference: Health and Safety Code 25292, 25292.1, 40 CFR 280.21, 280.32(d), 281.33

A. 45-Day Notice

EPA

State Water Resources Control Board

Division of Clean Water Programs

Mailing Address:
PO Box 944212
Sacramento, CA
94244-2120

2014 T Street,
Suite 130
Sacramento, CA
95814
(916) 227-4377
FAX (916) 227-4349

www.swrcb.ca.gov

Pete Wilson
Governor

FEB 20 1998

TO: Local Implementing Agencies and Interested Parties

NOTICE OF PROPOSED RULEMAKING

This is to inform you that a Notice of Proposed Rulemaking (attached) regarding proposed amendments to the California Underground Storage Tank Regulations will be published in the February 20, 1998 California Regulatory Notice Register. The proposed amendments affect Sections 2611, 2662, and 2664 of Chapter 16, Title 23, Division 3, of the California Code of Regulations. February 20, 1998 is the beginning of the 45 day public comment period regarding the proposed amendments.

The California Regulatory Notice Register is available from the Office of State Printing by calling (916) 324-7954. The Notice of Proposed Rulemaking may also be accessed via the State Water Resources Control Board internet website at ***http://www.swrcb.ca.gov/***, Underground Storage Tank Section.

If you have any questions concerning this matter, please contact Charles NeSmith of this office at (916) 227-4377.

Sincerely,

Allan Patton, Manager
Underground Storage Tank Program

Attachment

CalEPA

State Water Resources Control Board

Division of Clean Water Programs

Mailing Address.
PO Box 944212
Sacramento, CA
94244-2120

2014 T Street,
Suite 130
Sacramento, CA
95814
(916) 227-4377
FAX (916) 227-4349

www.swrcb.ca.gov

Pete Wilson
Governor

FEB 2 0 1998

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If you have any questions concerning this matter, please contact Charles NeSmith of this office at (916) 227-4377.

Sincerely,

Allan Patton, Manager
Underground Storage Tank Program

B. Statement of Mailing

STATEMENT OF MAILING NOTICE
(Pursuant to Section 86 of Title 1 of the California Code of Regulations)

The State Water Resources Contorl Board has complied with the provisions of the Government Code Section 11346.4 subdivision (a)(1) through (4), regarding the mailing of the notice of proposed regulatory action. The notice was mailed on February 20, 1998 within 45 days prior to the end of the comment period which is scheduled for April 6, 1998.

Dated: February 20, 1998

By: _____

Associate Engineering Geologist

C. Written Comments, SWRCB Response, All Related Documents

Fiberglass *Tank & Pipe Institute*
Sullivan D. Curran, P.E., Executive Director
9801 Westheimer, Suite 606 • Houston, Texas 77042-3591 • Telephone (713) 952-2962 • Facsimile (713) 952-4695

April 3, 1998

State Water Resources Control Board
Division of Clean Water Programs
Underground Storage Tank Program
2014 "T" Street
P. O. Box 944212
Sacramento, CA 94244-2120

RE: Proposed Amendments to UST Regulations (Title 23, Division 3, and Chapter 16)
#2. Delete Requirement for Mandatory Interior Lining on Bladder Upgrades

Dear Madam or Sir:

We appreciate the opportunity to comment on the proposal to delete the requirement for interior lining on Bladder Upgrade of UST's. Our members have investigated steel UST interior corrosion, bladder upgrades and the interstitial vacuum leak detection system. Therefore, we have concluded that the internal corrosion process will continue in a bladder upgrade. In addition, we would like to present other concerns for the state to consider when bladders and interstitial vacuum are applied to motor fuel UST's

Tank Bladders and Internal Corrosion – Two forms of internal corrosion occur in all steel aboveground and underground tanks. The most common is "uniform" (i. e., widespread) corrosion on unprotected areas of the steel tank shell, most typically the tank roof and upper walls when they are exposed to moisture in the air. The second is "point" corrosion because of galvanic corrosion cells developing in condensed water or other materials (i. e., the electrolyte) between the stored product and the steel surface. There is no evidence that a tank bladder will prevent water from condensing or foreign materials from accumulating in the interstice material and prevent a galvanic cell from developing, causing point corrosion, the most common cause of tank corrosion failures

Bladder Permeability - Flexible bladders are manufactured from a polyvinyl chloride (PVC) based material held in place by a pump that draws a vacuum on the interstitial space between the bladder and the tank wall. Based on plastic manufacturer permeability data and other laboratory immersion testing, the bladder material is permeable to liquid hydrocarbons. This means that the volatile components of petroleum products will pass through the bladder material. Underwriters Laboratory bladder test protocol uses ASTM E96-94 and a pass-rate criterion of 0.25 ounces/square foot/day. This test permits an allowable leak rate of some 8 to 52 gallons per month from the surface area of a bladder installed in 2,000 to 12,000 gallon tanks.

MTBE Permeability – MTBE is a high vapor phase material. Because of its high vapor pressure (i. e., roughly three times that of benzene), it can theoretically cause the vapors in an UST system to be more enriched with MTBE than the liquid gasoline from which the vapors originally evaporated. Thus, it can be expected that much of the vapors that pass through the bladder will be MTBE.

Interstice Vacuum Leak Detection – The ASTM E96-94 permeability test is a static test. Hence, the application of a vacuum to the bladder surface would be expected to increase the bladder permeability rate. Thus, the interstitial vacuum system will exhaust the volatile vapors (e. g., benzene, toluene, xylene and MTBE) into areas occupied by the public and employees.

Options to Meet 1998 Deadline - **While** we appreciate that the state is seeking more options to assist UST owners meet the 1998 deadline, this is not a "no holds barred race" and we should not lose sight of the original objective to protect human health and the environment. Thus, the first consideration of the state is to make a determination if the upgrading method will not be a short-term masking of problem UST's that have outlived their useful life The federal EPA rule provided for many options, which have proven to be successful when properly, applied.

Please advise if we can provide any documentation to support the above comments.

Sincerely,

CC: Board of Directors
Jeffrey Leiter, Collier, Shannon, Rill & Scott, Washington, DC

WRITTEN COMMENTS

Pursuant to Government Code 11347.3(a)(6) written comments received during the 45-day comment period between February 20, 1998 and April 6, 1998, and the SWRCB response, are included herein. Additionally, pursuant to Government Code 11347.3(a)(6) this rulemaking file contains all material received in connection with the proposed rulemaking, which includes comments received prior to SWRCB adoption of the related emergency regulations on November 18, 1997. Pursuant to Government Code 11347.3(b)(7) this rulemaking file contains all material relied upon by the SWRCB to support the proposed amendments.

Message: 8
To: cnesmith@ix.netcom.com
From: DAVID WILEY <WILEY.DAVID@EPAMAIL.EPA.GOV>
Subject: Bladder Systems -Reply
Date: Tue, 26 Aug 1997 16:37:14 -0400

Charles NeSmith,

If you don't also require external cathodic protection (CP), then I support you on the requirement for a lining. If you do require CP, then it seems like a belt-and-suspenders situation. In addition, someone with more corrosion knowledge than myself may be able to show that internal corrosion in a bladder-equipped UST is unlikely due to a lack of oxygen; I don't know.

We haven't put out much guidance on bladders, but we do have a July 9, 1992 letter about how bladders fit w/ the federal UST regs. Let me know if you don't have it, and I'll send it to you.

David Wiley

U.S. EPA, Office of Underground Storage Tanks
U.S. Mail: 401 M St SW (5402G), Wash. DC
20460
Delivery: 1235 Jeff Davis Hwy, 13th Fl, Arlington, VA 22202
Phone 703-603-7178, Fax 703-603-9163

>>> KWA Leaklist <leaklist@kwaleak.com> 08/22/97 10:50am >>>
From: Chuck NeSmith
[SMTP:cnesmith@ix.netcom.com]
Sent: Thursday, August 21, 1997 5:53 PM
To: leaklist@kwaleak.com
Subject: Bladder Systems

My name is Charles NeSmith and I work for the California State Water Resources Control Board. A manufacturer of bladder systems has requested that the SWRCB rescind the requirement in California that bladder systems must also include a 1/8" thick interior coating on the host tank. The SWRCB included this requirement in the 1994 regulations over concerns about internal corrosion. Anyone who has any thoughts on this matter please contact me at cnesmith@ix.netcom.com.

Additionally, any manufacturers of bladder systems who wish to send me information on their product, please do so by mailing the info to:

Charles NeSmith
State Water Resources Control Board
2014 "T" Street, Suite 130
Sacramento, CA, 95814

Thank you!

http://www.kwaleak.com/index.htm

RESPONSE TO COMMENTS

1998 AMENDMENTS TO CALIFORNIA UNDERGROUND STORAGE TANK REGULATIONS SECTIONS 2611, 2662, AND 2664

The only comments received by the SWRCB during the designated comment period were from a representative of the Fiberglass Tank and Pipe institute in Houston, Texas. Two basic issues were raised: 1) the permeability of PVC bladders with respect to the volatile components of gasoline, including MTBE; and 2) potential internal corrosion of a steel host tank (no comments were received regarding the proposed definition of "motor vehicle fuel").

The commenter stated that the volatile components of gasoline (especially MTBE) will pass through a PVC bladder and into the interstitial space between the host tank and the bladder, and then be exhausted into the atmosphere occupied by the public and employees via the vacuum interstitial monitoring system. These comments, however, are irrelevant to the question of whether on not to rescind the mandatory interior lining requirement for bladder systems since interior lining has no affect on the permeability of bladders or the interstitial monitoring system. All primary underground storage tanks, including bladder systems, must be product tight and compatible with the substance stored, and third party certified that these requirements have been met. In the case of bladder system, this requirement is regardless of whether or not the interior of the host tank is lined.

The commenter also claimed that there is no evidence that a tank bladder will prevent interior corrosion from occurring.. Nearly all of the bladder systems we are aware of use vacuum interstitial monitoring which nearly eliminates air and moisture from collecting in the interstitial space, thus making the potential for internal corrosion negligible.

We concur that some internal corrosion may occur in bladder system that does not use a vacuum interstitial monitoring system. However, the decision to rescind the mandatory interior lining requirement for bladder systems was not based on the premise that no internal corrosion will occur in the steel host tank. Rather, this was a "risk-based" decision which considered the overall performance of bladder systems (without interior lining) with respect to the other upgrade option allowed in California, i.e. interior lining with cathodic protection. This option remains a single-walled system that must be monitored by volumetric methods via an automatic tank gauge or statistical inventory reconciliation since there is no interstitial space.

In comparing this upgrade option with the proposed option of a double-walled bladder system without interior lining we concluded that the proposed option would be **at least** as protective of the environment as the single-walled system. This conclusion was based primarily on the secondary containment and interstitial monitoring features provided by

bladder systems. The mandatory interior lining requirement unnecessarily discourages the installation of bladder systems and thus encourages single-walled upgrades.

We determined that the mandatory interior lining requirement was unnecessary to control internal corrosion (as well as being inconsistent with Federal and State requirements) based on:

1. Evidence cited by the EPA in the pre-amble to the 1988 Federal ruling which indicated that internal corrosion accounted for only about 10% or less of underground tank failures. Additionally, the EPA determined that these internal corrosion failures occurred at the bottom of the fill-pipe opening and often could have been prevented if striker plates had been used (now required on all upgrades in California).

2. Given the above, the EPA decided not to mandate interior lining of new steel underground storage tanks. California does not require interior lining of new steel underground tanks either.

3. The environment within the interstitial space of a bladder and a steel host tank is far less conducive to corrosion than the environment in the primary tank which is readily exposed to fuel, air and moisture. This is especially the case where a vacuum is drawn within the interstitial space.

Clearly the decision to rescind the mandatory requirement in California for interior lining prior to installation of bladder systems is: 1) consistent with risk-based logic, i.e. secondary containment and interstitial monitoring provide at least as much protection to the environment as single-walled (lined) systems; 2) consistent with EPA's determination that interior corrosion is not a significant factor in underground tank failures; 3) consistent with EPA's and California's decision not to require interior lining of new steel underground storage tanks; and 4) consistent with the fact that significant interior corrosion is far less likely to occur within the interstitial space of a bladder system than in the primary steel tanks which were the subject of EPA's determination regarding internal corrosion.

ALL MATERIAL CONNECTED WITH THE PROPOSED RULEMAKING NOT SUBMITTED DURING THE 45-DAY COMMENT PERIOD, AND ALL MATERIAL RELIED UPON BY THE SWRCB TO SUPPORT THE PROPOSED RULEMAKING

Chuck.

al/EPA

State Water Resources Control Board

Division of Clean Water Programs

Mailing Address:
PO Box 944212
Sacramento, CA
94244-2120

2014 T Street,
Suite 130
Sacramento, CA
95814
(916) 227-4377
FAX (916) 227-4349

www.swrcb.ca.gov

SEP 0 4 1997

Pete Wilson
Governor

TO: Local Implementing Agencies

REQUEST TO RESCIND REQUIREMENT IN CALIFORNIA THAT INSTALLATION OF BLADDER SYSTEMS MUST ALSO INCLUDE INTERIOR COATING OF THE HOST TANK

A manufacturer of flexible containment systems (commonly known as "bladders") for underground storage tanks, has requested the State Water Resources Control Board to rescind the California requirement that bladder systems must also include a 1/8" thick interior coating of the host tank. According to the Statement of Reasons for the 1994 California Underground Storage Tank Regulations, the SWRCB required the interior coating to control internal corrosion. The manufacturer claims that there will not be any significant internal corrosion due to the constant vacuum maintained in the interstitial space (for monitoring purposes) between the bladder and the steel host tank.

If you have any comments regarding this issue please call Mr. Chuck NeSmith at (916) 227-4377 or or e-mail your comments to cnesmith@ix.netcom.com, by September 12, 1997. Additionally, we would appreciate any comments you may have on bladder systems that have been installed, or have been proposed to be installed, within your jurisdiction.

Sincerely

ORIGINAL SIGNED BY
Allan Patton, Manager
Underground Storage Tank Program

h:\data\docs\chuck\liablad.doc

SURNAME
DWR 340 REV. 1/96

Chuck NeSmith 9/3/97 | A. Patton 9/3/97

City of Hesperia Fire Department

17288 Olive Street • P.O. Box 400049 • Hesperia, California 92345 • (619) 947-1600 • FAX: (619) 244-9174

September 11, 1997

State Water Resources Control Board
2014 T St. Suite 130
Sacramento, Ca. 95814

Re: Elimination of Bladder System for interior coating of the host tank.

Dear Mr. Patton:

This letter is in response to your request for comments concerning the elimination of the requirement for a 1/8 inch interior coating. The Hesperia Fire Protection District is opposed to the elimination of this requirement in its totality. The Hesperia Fire Protection District would however, support language that is permissive in nature and would vest the final decision with the local implementing agency. This would allow the local implementing agency to determine based on site specific circumstances whether or not interior coating is warranted.

The manufacturer's claim "that there will not be any significant internal corrosion" does not address all the problems and all circumstances that may arise at a local level. It would be premature to totally exclude this requirement.

I respectfully request that you carefully consider this as an option before you rescind this requirement from the regulations.

Respectfully Submitted,

Kurt Latipow, Fire Chief
City of Hesperia Fire Protection District

KL/day

COUNTY OF ORANGE
HEALTH CARE AGENCY

PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

TOM URAM
DIRECTOR

HUGH F. STALLWORTH, M.D.
HEALTH OFFICER

JACK MILLER, REHS
DEPUTY DIRECTOR

MAILING ADDRESS:
2009 EAST EDINGER AVENUE
SANTA ANA, CA 92705-4720

TELEPHONE (714) 667-3600
FAX (714) 972-0749

September 12, 1997

Allan Patton, Manager
Underground Storage Tank Program
State Water Resources Control Board
PO Box 944212
Sacramento, CA 94244-2120

Subject: Response to request to rescind interior tank lining requirement

Dear Allan:

This letter is in response to your letter of September 4, 1997 requesting comments on the bladder system for interior tank lining. The Orange County Health Care Agency opposes the proposal to rescind the requirement for interior tank lining for the bladder system. We believe that the installation of a bladder system **should** include a 1/8" thick interior coating for the following reasons:

- Lining of the interior tank wall protects against internal corrosion. Your letter states that the manufacturer of the bladder system claims that there will not be any significant internal corrosion without the interior lining. We would be interested to review the results of any such research or study. In the absence of such study, the consideration to amend current interior tank lining requirements will be premature. Furthermore, we believe **any** corrosion in an underground tank system is significant, and must be guarded against. Lining the interior tank wall also ensures that there is a smooth surface against the bladder wall.

- Bladder manufacturers rely on the interstitial probe to detect any liquid leaks or failure in the vacuum. Interstitial probes may fail even though they are required to be tested on an annual basis per the California Code of Regulations (CCR). In the case of a failed probe, it is possible for the interior tank to corrode without detection.

- Cathodic protection is required for the exterior of the tank. This system is required to be tested six months after installation and once every three years thereafter. This Agency has observed incidents where the cathodic protection system has been disabled and is not providing adequate protection. In such a case, the tank could freely corrode for up to several years, causing significant corrosion to the tank wall that could affect the bladder. If a tank were lined prior to installation of a bladder system, it would decrease the potential for failure.

If the requirement to line the tank prior to installation of a bladder is rescinded, the local implementing agencies will need specific guidelines as to how the interior tank wall should be prepared prior to the installation of a bladder.

For future reference, we believe that if your office is sincerely interested in receiving comments and feedback from the local agencies, adequate notification and review time must be provided. Otherwise, most agencies would not be able to alter their program priorities on such a short notice to offer any meaningful comments. Much worse, some would perceive your office is simply going through the motion and is in fact not interested in the viewpoints of the local agencies.

I want to thank you for the opportunity to review and to provide comments on the proposal. If you have any questions regarding our position or require any further clarification, please do not hesitate to contact me or Patricia Gwathmey of my staff at (714) 667-3785.

Sincerely,

Jack Miller, REHS, Director
Environmental Health Division

Check-file

TOM URAM
DIRECTOR

HUGH F. STALLWORTH, M.D.
HEALTH OFFICER

JACK MILLER, REHS
DEPUTY DIRECTOR

MAILING ADDRESS
2009 EAST EDINGER AVENUE
SANTA ANA, CA 92705-4720

TELEPHONE (714) 667-3600
FAX (714) 972-0749

COUNTY OF ORANGE
HEALTH CARE AGENCY

PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

October 28, 1997

Allan Patton, Manager
Underground Storage Tank Program
Division of Clean Water Programs
State Water Resources Control Board
PO Box 944212
Sacramento, CA 94244-2120

Subject: Rescission of Interior Tank Lining Requirements

Dear Allan:

This letter is in reply to your draft Responses to Request to Rescind the Interior Lining Requirement of a Host Steel Tank in a Bladder System, dated October 7, 1997. We would like to take this opportunity to reiterate our opposition to the proposed rescission. The Orange County Health Care Agency feels that in order to adequately protect the public health and safety from leaking underground storage tanks, an interior lining requirement is necessary. However, we understand that the comments from local agencies, the U.S. EPA and other interested parties must be evaluated as a whole, and trust that the decision to rescind the requirement was made placing primary consideration on the protection of the public health and the environment.

Again, thank you for the opportunity to review and to provide comments on the proposal. If you have any questions, please do not hesitate to contact me at (714) 667-3771.

Sincerely,

Jack Miller, REHS, Director
Environmental Health Division

Rohrback Cosasco Systems, Inc.
11841 East Smith Avenue
Santa Fe Springs, California 90670-6201
(562) 949-0123 FAX (562) 949-3065

a Corrpro company

Certificate No FM 10694
EN 29001 / ISO 9001 / BS 5750
Approved by BSI

DATE: 9/19/97

TOTAL SHEETS: 3
(INCLUDING COVER SHEET)

TO: Chuck McSmith

ATTN:

FROM: W. J. McDade

CC:

REF: letter

Enclosed is letter you requested. I'll be at POC on Thursday & Friday. I'm not exhibiting but I'll be around the HT Technologies booth on Friday.

I'd like to meet you.

Joe McDade

Corrpro Companies Incorporated
"A Commitment to Excellence"
11841 E. Smith Avenue
Santa Fe Springs, CA 90670
Tel 310/949-0123 • Fax 310/949-3065

September 19, 1997

Mr. Chuck NeSmith
State Water Board
2014 "T" St. Suite 130
Sacramento, CA 95814

Dear Mr. Nesmith:

You have asked me to comment on the general advisability of internally coating underground storage tanks and specifically on the technology of installing internal bladders in place of coating.

First, I should give you some of my background. I started in the corrosion control business in the early 1960s. Throughout the '70s and early '80s I was president of the largest cathodic protection company in the United States, Harco Corporation.

In my opinion internal coating has been and is a very expensive partial solution to the overall corrosion control problem. Virtually every study based on facts (and not coating companies hype) put the major cause of UST corrosion on exterior rather than interior corrosion. In an early study, Dr. Warren Rogers states, "The great majority (approximately 85%) of perforations in steel underground tanks are induced by external corrosion."[1] In a later study by Dr. Rogers, he found 550 out of 50,000 failures due to internal corrosion (1%) of the universe.

In a paper John H. Fitzgerald III P.E. (Past President of the National Association of Corrosion Engineers) quotes from a survey conducted by the American Petroleum Institute (API) "(That) about nine percent of tank leaks reported were the result of internal corrosion."[2] Others, such as a joint UST study done by Suffolk County, New York, and the EPA, found 9 internal tank failures out of a total of 500 tank failures (less than 2%). Other studies show less than 1% failure due to internal corrosion.

My personal experience, over more than 34 years at Harco Corporation and other corrosion control companies confirm that less than 1% of failures are caused by internal corrosion.

Regardless of what report is the true percentage, one can come to no other conclusion than exterior corrosion is the primary causal factor. External cathodic protection is also the least expensive corrosion prevention technology which should encourage compliance by the operators.

As to my opinion on internal bladder technology I am in favor of it over coating for several reasons. The primary benefit is that it enables a double wall tank configuration which is far superior to coating which remains a single containment system. Secondly the bladder system provides the owner with an excellent monitoring system. Furthermore, even if the bladder leaks the product will not spill out into the surrounding environment because of the double tank aspect. It should be pointed out that in order for the tank shell to ensure long-term secondary containment, it must first be certified to be structurally sound and must be retrofitted with external cathodic protection in order to maintain its structural integrity. Additionally the 10 year internal coating reinspection should be waived as there is no need provided the internal bladder with external cathodic protection upgrade option be employed with leak monitoring between bladder and shell.

I believe the EPA and States should work to cooperate with owners to upgrade their UST's with the most cost effective yet environmentally protective upgrade systems.

I hope this helps.

Very truly yours,

Joe McDade

Joe McDade

1. Mean Time to Corrosion Failure, *Warren Rogers Ph.D., Warren Rogers Associates*

2. Don't Let Corrosion Get Your Underground Tanks, *John H. Fitzgerald III PE,. 1st printed in NACE Magazine, April 1988*

UNDERGROUND TANK & ENVIRONMENTAL SPECIALISTS
OE ASSOCIATES
LIC # 571896 • A, C-57, C-10 HAZ

September 12, 1997

To: Chuck Nesmith/ SWRCB, FAX (916) 227-4349

From: Owen E. Weyers/ OE Associates

Subject: Comments on the proposal that UST upgrade options allow the use of a bladder as an alternative to tank lining.

Dear Mr. Nesmith,

OE Associates has been in the UST installation, removal, remediation and upgrade business since 1985. We have, during this period, installed numerous cathodic protection systems, overfill/ overspill boxes, and tank level monitoring systems. We have spent a lot of time around UST systems and the owners of these tanks. We have heard their tales of woe as to the costs of upgrading their systems to meet the 1998 requirements.

I think that the proposal to allow the installation of a bladder inside an existing UST, rather than lining is a sound idea, one which could help the typical mom and pop tank owner. Specifically, it provides much of the safety of a double wall tank in that sensors between the tank and bladder alert the owner of a problem prior to a release to the ground. It does this at a fraction of the cost of a new double wall UST. I would also say that another potential benefit would be less down time for installation of the bladder over the lining operation. This should be especially attractive to a small operator.

Technically, I would think that the use of a bladder would allow for repairs of the UST prior to installation. The tank could be repaired by welding of rolled plate over the perforated area, as long as the edges of the plate were smoothed to keep from tearing the bladder. In addition, I think flexure of the UST due to earth movement (earthquakes) would cause less damage than with a bonded liner, which might separate.

I can be reached at (805) 650-1275 if you have any questions.

Regards,

Owen E. Weyers RHSP, REA
President

P.O. BOX 7298 VENTURA, CALIFORNIA 93006 (805) 650-1275 FAX (805) 650-9967
P.O. BOX 7070 LOS OSOS, CALIFORNIA 93412 (805) 528-8807 FAX (805) 528-8721

Avon Technical Products Group

September 8, 1997

Charles NeSmith
State Water Resources Control Board
2014 T Street, Ste 130
Sacramento, CA 95814

Dear Mr NeSmith

In response to your inquiry posted on the KWA Leak List, I have enclosed our brochure for the UST flexible internal liner (commonly known as a bladder) This product has been third party evaluated by Ken Wilcox and Associates to meet or exceed (it does exceed) the EPA requirements. Florida approves it as meeting new construction standards for secondary containment

In Germany, bladders have been widely used over the past twenty years to satisfy their more stringent requirements for secondary containment. Ironically, an intermediate step of epoxy lining is not required.

The superior vacuum leak detection monitoring system of both the primary (bladder) and secondary (original tank) practically eliminates environmental risk. In a bladder upgrade the tank is evaluated for integrity and suitability. Cathodic protection is installed if unprotected Each liner is custom fabricated for each tank. If as built drawings are not available, we measure the tank from the inside and fax the measurements to the factory Within 48 hours, the finished, tested liner is on its way to the site Meanwhile the tank is cleaned, inspected for burrs and sharp edges and modifications made to manway and other openings Final installation is accomplished with factory trained and certified technicians With our required remote monitoring, defeating the system is virtually impossible

A bladder takes an existing tank and upgrades it to secondary containment leak detection capability Epoxy lining cannot make that claim. However, the current epoxy-lining requirement for bladders effectively eliminates it as an option Granted, lining does fill in tiny pinholes and protects against corrosion. However, we intend to employ stringent evaluation criteria and inspection techniques to cull tanks that have a high probability of damage due to corrosion, and with the interstice under vacuum internal corrosion is not an issue. If a tank passes our selection process, chances are it is in very good shape. If the outer wall is breached, the vacuum leak detection system quickly detects it and is not satisfied until the breach is repaired.

Our manufacturing company, Bell Avon is a long time supplier to the US military Bell Avon has demonstrated the capability to produce flexible tanks to the highest standard. We are committed to this product and will assure its success through superior quality and customer support.

I operate out of Arizona My phone number is 602 892-7013; e-mail at mbouton@dancris.com. Please let me know how I can assist with your evaluation process.

Sincerely,

Michael Bouton

Avon Technical Products
12 W Seventh Street
Cadillac, MI 49601-1343
Phone (616) 779-4390
Fax (616) 779-4399

A T P - Mexico
Reforma #250-403
Mexico D F 06600 Mexico
Phone 52-2-208-0777
Fax 52-5-511-1382

Pacer Tool & Plastics
660 Montrose Avenue
South Plainfield, NJ 07080-2698
Phone (908) 754-2822
Fax (908) 754-6589

Bell-Avon
1200 Martin Luther King Jr
Picayune, MS 39466-5410
Phone (601) 799-1217
Fax (601) 799-1360

Office of Underground Storage Tanks

WAIT 1998

Facsimile Cover Sheet

To: Chuck NeSmith **Date:** 8/28/97

Office: State Water Resources Control Board

Phone: 916 227 4377 **Fax:** 916 227 4349

From: David Wiley

Phone: 703 603 7178 E-mail: wiley.david@epamail.epa.gov

Comments: Hope this helps.

DW

No. of pages (including this cover sheet): 7

EPA Ofice of Underground Storage Tanks www.epa.gov/OUST/

U.S. Mail:
401 M. Street, S.W.
Washington, D.C. 20460
Fax Number: (703) 603-9163

Deliveries:
1235 Jefferson Davis Hwy, 13th Floor
Arlingtron, VA 22202

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

JUL 9 1992

Mr. John Hendershot
World Enviro Systems, Inc.
P.O. Drawer 789
Shawnee, Oklahoma 74802

Dear Mr. Hendershot,

This is to respond to your attached letter of March 19, 1992, requesting "EPA's acceptance of the World Enviro Systems, Inc. flexible membrane internal containment/vacuum monitor system for single wall steel or fiberglass tanks as secondary containment with interstitial monitoring..." Unfortunately, EPA does not test, certify, or approve specific brands or products. What follows, however, is a clarification on how EPA's Underground Storage Tank (UST) regulations apply to the type of system described in your letter. It has been reviewed by representatives of EPA's Office of General Counsel, and of State and EPA Regional UST programs.

In summary, flexible internally fitted liner systems can be shown to meet the Federal requirements for release detection (but not for upgrading or repairing) for both petroleum and hazardous substance USTs if certain conditions are met. Please refer to the discussion below.

Background

Based on information you have provided, our understanding of the type of system at issue is as follows. The system includes a flexible non-metallic internally fitted one piece liner. This liner is situated inside a steel, fiberglass-reinforced plastic or composite UST, and covers the entire inner surface of the tank. There is continuity throughout the interstitial space such that both vapors and liquids can migrate from any part of the interstice to another. The system maintains a vacuum in the interstitial space and triggers an alarm when conditions indicate a breach in any portion of either the liner or in the tank outside the liner. Piping is not addressed by the system.

We further understand that there are currently no codes of practice or standards developed by nationally recognized

associations or independent testing laboratories for the design, construction, installation, testing, or maintenance of flexible liners specifically for the storage of petroleum or other regulated substances.

Our clarification is based on the above understandings and may not apply to other types of systems. Also, please note that State and local requirements can differ from EPA's.

Release detection for petroleum underground storage tanks

Internally fitted liners are specifically addressed in section 280.43 -"Methods of release detection for tanks." Section 280.43(g) allows interstitial monitoring to be used if the system is designed, constructed and installed to detect a leak from any portion of the tank that routinely contains product, and 280.43(g)(3) allows internally fitted liners, provided that "[f]or tanks with an internally fitted liner, an automated device can detect a release between the inner wall of the tank and the liner, and the liner is compatible with the substance stored." Compatibility is also required in Section 280.32, which requires that "owners and operators must use an UST system made of or lined with materials that are compatible with the substance stored in the UST system."

Compatibility testing and documentation can assure owners and operators that a liner is compatible with the material to be stored. There are many test methods available (including EPA's SW-846 Method 9090A) and the data you provided cover many years of testing. EPA does *not*, however, determine whether or not a particular liner is compatible with any substance or blend which could be stored in UST systems.

However, if the liner is compatible with the substance stored and monitored at least every 30 days as required in section 280.41, a system incorporating a flexible membrane could be shown conclusively to meet the release detection requirements for petroleum USTs.

Release detection for hazardous substance USTs

A *hazardous substance* UST system, which is defined in section 280.12, must currently meet, at a minimum, the requirements for a petroleum UST plus additional requirements for hazardous substance UST systems found in section 280.42(b)(2). New systems must meet the additional requirements now; existing systems must meet the additional requirements by December 22, 1998. These additional requirements include secondary containment systems which must be designed, constructed, and installed to:

- o contain regulated substances released from the tank

system until they are detected and removed;
- o prevent the release of regulated substances to the environment at any time during the operational life of the UST system; and
- o be checked for evidence of a release at least every 30 days.

The regulations note that the provisions of 40 CFR 265.193 (a portion of the regulations promulgated pursuant to Subtitle C of the Resource Conservation and Recovery Act that is applicable to tanks storing *hazardous wastes*) may be used to comply with these requirements. We consulted with representatives of EPA's Office of Solid Waste (OSW), who could not state without more extensive review that flexible membrane internal containment systems would meet the requirements of section 265.193. They further recommended that, since most States are authorized to operate their hazardous waste programs, inquiries should be made to the individual states. OSW also recommended the Technical Resource Document for the Storage and Treatment of Hazardous Waste in Tank Systems (EPA/530/SW-86-044, National Technical Information Service PB86-219417/AS) as a helpful resource.

Although compliance with the hazardous waste tank regulations is unresolved, resolution of this question is not necessary to determine compliance with the UST regulations. We believe that a system which incorporates a flexible membrane as described above could meet the requirements of integral secondary containment for both petroleum *and* hazardous substances if the outer tank is in compliance with all other applicable requirements, including new tank standards now in effect and upgrading standards due to take effect in 1998.

Upgrading of existing UST systems and repairs allowed

Section 280.21 requires that, as of December 22, 1998, all tanks must meet new UST system performance standards, upgrading requirements, or closure requirements. The addition of a flexible liner system alone is *not* sufficient to meet either the requirements of this section for upgrading, or the requirements of section 280.33 for repairs. These sections require adherence to a code of practice developed by a nationally recognized association or independent testing laboratory, and we know of no such standards developed for the type of system described above.

Conclusion

A system with an internally fitted liner and an automated detection device matching the description above may be capable of meeting the Federal requirements for release detection for both petroleum and hazardous substance USTs if the liner is compatible with the substance stored and if an automated device triggers an

alarm when any portion of either the outer tank or inner liner is breached. This same system cannot presently meet Federal requirements for upgrading or repairing existing UST systems.

Many leak detection methods are evaluated against standard test procedures to verify performance. Although such an evaluation is not required by EPA's regulations, it may help owners and operators and State and local governments judge how a system will meet particular needs.

The Office of Underground Storage Tanks encourages innovative approaches to UST problems. We also recognize the importance of nationally recognized associations and testing labs, and encourage developers to work with them in evaluating and documenting the performance of new systems. EPA labs are not currently involved in this area.

Thank you for contacting us and providing us with background information. If you have any questions, please contact David Wiley of my staff at (703)308-8877.

Sincerely,

David W. Ziegele, Director
Office of Underground Storage Tanks

Attachment

cc: UST/LUST Regional Program Managers
Dawn Messier, OGC
Chester Oszman, OSW
Joe DLugosz, EMSL - Las Vegas
Anthony Tafuri, RREL, Edison
Barbara Simcoe, ASTSWMO
Josh Baylson, OUST
William Lienesch, OUST
David Wiley, OUST

World Enviro Systems, Inc. WES P.O. DRAWER 789, SHAWNEE, OK 74802
PHONE (405) 275-7565 FAX (405) 275-3900

March 19, 1992

Rec'd 3/27/92 DRW

Mr. David Wiley
U. S. Environmental Protection Agency
Office of Underground Storage Tanks
401 "M" Street S.W.
Washington, D. C. 20460

Dear Mr. Wiley:

Re: Hazardous Waste-Secondary Containment w/ Interstitial Monitoring.

This is to request EPA's acceptance of the World Enviro Systems, Inc. flexible membrane internal containment / vacuum monitor system for single wall steel or fiberglass tanks as secondary containment with interstitial monitoring for hazardous waste tanks.

There is uncertainty among state regulatory agencies as to how to classify this product. The fact that the WESI internal containment method converts a single wall tank to function as both, 1> a double-walled tank or equivalent device (Secondary Containment) and 2> as a continuous leak detection system (interstitial Monitor) cause wide confusion.

State regulators seem to consider secondary containment and interstitial monitoring as individual systems and tend to consider the WESI method as one or the other. The WESI method combines both systems, converting a single-walled tank to function precisely as a double-walled tank with interstitial monitoring.

EPA Rules for Hazardous Waste Tank Systems clearly define the WESI method; #265.193(e)(3)(i) - as a Double-Walled tank or an equivalent device (an inner tank within an outer shell) and, (iii) provided with a built-in, continuous leak detection system.

Attached hereto is a 3 page review of EPA rules, Section #265.193, July 1, 1990 Edition which support the technology of a double-walled tank with "a built-in leak detection system". Those rules that appear to have some relationship to the WESI method are listed on the left side of the page. An explanation of how the WESI method "fits" the rule is listed on the right side of the page. There is a 4th page that outlines some background information, listed in the same manner.

In going through our old files selecting information for CMRI I ran across a letter to the National Environmental Research Center dated June 3, 1972. A copy is enclosed.

A photocopy of an old brochure is enclosed. I have numbered some of the pictures and attached a short explanation of the job.

I have found some remaining pictures of our "laboratory" that I am enclosing with explanations.

The enclosed information is only a small portion of what has been accumulated over the years. I did not want to overwhelm you with reading. If there is anything further you would like, please let me know.

We will appreciate a written acknowledgment that the WESI method is recognized and/or accepted by The Environmental Protection Agency as a method of compliance with Rules for Hazardous Waste Systems. Some suggested classifications are;

(a) A double-walled tank with interstitial monitoring.
(b) A device equivalent to a double-walled tank with interstitial monitoring.
(c) Secondary containment with interstitial monitoring.

Thank you for a favorable consideration.

Best Regards,

John Hendershot

Return-Path: <jclark@humgate.co.humboldt.ca.us>
Received: from co.humboldt.ca.us (humgate.co.humboldt.ca.us [207.221.155.250]) by
ixmail5.ix.netcom.com (8.7.5/SMI-4.1/Netcom)
id QAA26833; Thu, 11 Sep 1997 16:51:05 -0700 (PDT)
From: jclark@humgate.co.humboldt.ca.us
Received: from mail.co.humboldt.ca.us by co.humboldt.ca.us (SMI-8.6/SMI-SVR4)
id QAA09554; Thu, 11 Sep 1997 16:48:40 -0700
Received: from ccMail by mail.co.humboldt.ca.us (ccMail Link to SMTP R6.01.01)
id AA874021769; Thu, 11 Sep 97 16:49:30 -0800
Message-Id: <9709118740.AA874021769@mail.co.humboldt.ca.us>
X-Mailer: ccMail Link to SMTP R6.01.01
Date: Thu, 11 Sep 97 16:40:42 -0800
To: <cnesmith@ix.netcom.com>
Subject: Bladder System Comments
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: Quoted-Printable

The Humboldt County Division of Environmental Health does not object t=
o=20
installation of U.L. approved flexible bladder systems in unlined steel=
=20
underground motor fuel storage tanks which are not fiberglass reinforce=
d plastic=20
coated, or plastic clad, provided:

=B7 The containment system is at least as protective to the environmen=
t as the=20
current standards, as shown by independent scientific evaluation. =
=20

=B7 All other 1998 upgrade requirements are met.

=B7 Such installation is approved by the State Water Resources Contro=
l =20
Board
=

Return-Path: <JIM.WADA@mail.co.ventura.ca.us>
Received: from fw.co.ventura.ca.us (fw.co.ventura.ca.us [157.145.220.1]) by ixmail8.ix.netcom.com (8.7.5/SMI-4.1/Netcom)
id PAA09431; Tue, 9 Sep 1997 15:02:55 -0700 (PDT)
From: JIM.WADA@mail.co.ventura.ca.us
Received: from fw.co.ventura.ca.us (root@localhost) by fw.co.ventura.ca.us (8.7.5/8.7.3) with ESMTP id OAA12583 for <cnesmith@ix.netcom.com>; Tue, 9 Sep 1997 14:57:35 -0700 (PDT)
Received: from mailhq.co.ventura.ca.us (mailhq.co.ventura.ca.us [157.145.4.26]) by fw.co.ventura.ca.us (8.7.5/8.7.3) with ESMTP id OAA12568 for <cnesmith@ix.netcom.com>; Tue, 9 Sep 1997 14:57:00 -0700 (PDT)
Received: by mailhq.co.ventura.ca.us
(1.37.109.20/16.4) id AA187272995; Tue, 9 Sep 1997 15:09:55 -0700
Received: by mail.co.ventura.ca.us via Worldtalk with X400 (3.0.4/1.72)
id WT07697.105; Tue, 09 Sep 1997 15:09:55 PDT
Date: 9 Sep 97 14:51:00 -0700
To: cnesmith@ix.netcom.com (Receipt Notification Requested)
Subject: UST Bladder Systems
Ua-Content-Id: UST Bladder Syst
P1-Recipient: cnesmith@ix.netcom.com
P1-Message-Id: US*TELEMAIL*VENTURACO;3415C753.464F.0033.000
Original-Encoded-Information-Types: IA5-Text
X400-Trace: US*TELEMAIL*VENTURACO; arrival 970909145100-0700 deferred 970909145100-0700 action Relayed
Message-Id: <3415C753.464F.0033.000*@MHS>
P1-Content-Type: P2

Ventura County Environmental Health Division (VCEHD) has reviewed the Bladder system letter dated September 4, 1997, from the SWRCB. VCEHD's opinion is lining a tank prior to installation of a bladder system is unecessary. If the tank is properly cleaned of product, sludge, and scale futher internal corrision should be at a minimum if the bladder does not leak and the vacuum system is properly functioning. Exterior corrosion protection is still necessary for a single wall steel tank.

Additionally, VCEHD views any secondarily contained tank as being superior to a single wall tank.

VCEHD has a facility that would install bladders if the lining was not necessary, so please inform this agency if a decision is made within the next two weeks.

This topic should be brought to the attention of the California Fire Chief's Association.

If you have any questions, please call me at (805) 654-2435.

Jim Wada
Ventura County Environmental Health Division
Hazardous Materials Section

From: marcel g moreau <marcel.moreau@juno.com>
To: TANKSLAND.Tanks(farahnas)
Date: 10/30/97 6:33pm
Subject: Bladders and so forth

In principle, I've always been in favor of bladders, because they seemed an economically feasible way to get storage systems into secondary containment, and I am a staunch believer in secondary containment. There is a reference in the federal rule to bladders that originated with me. I wanted the technology to be specifically recognized in the rule (even though there was no one in this country promoting the technology at the time) so that the absence of the technology from the rule would not become an obstacle to its implementation.

I do think that requiring bladder + lining + cp is a bit excessive. As I mentioned on the phone, I would have thought that the bladder people would have gone for the mix of lining + bladder rather than cp + bladder. Lining and bladders are more closely related technologies (both require tank entry, for starters), and I would have thought that an association of the bladder people and the lining people would have been natural (especially since Hersch Caudell was formerly associated with Armor Shield), but the tank business has certainly created stranger bedfellows than this.

>From a pure regulation perspective, you may want to check out what you plan to do relative to federal requirements. As I mentioned on the phone, I believe that sandblasting is a part of the structural assessment by internal inspection code, so if you are omitting that step from the bladder + cp procedure, you might end up being less stringent than the feds unless an alternative assessment procedure were used (estimating time to corrosion failure or video inspection). But because there is a bladder involved (and not just cp) the feds may be willing to cut you a little slack. Perhaps a hand held video survey would do the trick. All someone would have to do is get a third party to certify some hand held video procedure and EPA would have to go along.

In any case, I'm glad to see some activity on the bladder front. Give my regards to Hersch Caudell if you see him. And feel free to send me email anytime.

ps. I hear you have a local guidance document on overfill prevention. Any chance I could get a copy? Am I no longer on your mailing list? I haven't seen any mail from you folks in a long time.

Good to hear from you!

-Marcel

essage: 9
: Charles NeSmith <cnesmith@ix.netcom.com>
m: American Leak Detecti <102676.2072@CompuServe.COM>
ubject: Fwd: Bladder Systems
Date: 28 Aug 97 13:58:30 EDT
Hi Charles,

Your message was forwarded to me.

I am sorry to say, we do not have anything like that for a sealer.

Perhaps you might call Eric or Victor of VANDERLANDS AND SONS.
They specialize in inflatable plugs.
They might know of a compound or someone that carries such a product.
Their phone number is (209) 334-4115.

If you should have any other questions, please do not hesitate to cont
act me.

Jimmy Carter, Director of Training
AMERICAN LEAK DETECTION

----------Forwarded Message----------

From: INTERNET:Findleaks@aol.com, INTERNET:Findleaks@aol.com
To: American Leak Detecti, 102676,2072
(unknown), INTERNET:ENTREMKT@CYBERG8T.COM
□
Date: 8/24/97 11:13 PM

RE: Fwd: Bladder Systems

ender: Findleaks@aol.com
eived: from emout18.mail.aol.com (emout18.mx.aol.com [198.81.11.44]

by hil-img-4.compuserve.com (8.8.6/8.8.6/2.5) with ESMTP id XAA
23722
for <102676.2072@compuserve.com>; Sun, 24 Aug 1997 23:09:53 -04
00 (EDT)
From: Findleaks@aol.com
Received: (from root@localhost)
by emout18.mail.aol.com (8.7.6/8.7.3/AOL-2.0.0)
id XAA05594;
Sun, 24 Aug 1997 23:09:18 -0400 (EDT)
Date: Sun, 24 Aug 1997 23:09:18 -0400 (EDT)
Message-ID: <970824230646_1748746128@emout18.mail.aol.com>
To: 102676.2072@compuserve.com, entremkt@cyberg8t.com
Subject: Fwd: Bladder Systems

Forwarded message:
From: leaklist@kwaleak.com (KWA Leaklist)
Reply-to: leaklist@kwaleak.com (leaklist@kwaleak.com)
To: leaklist@kwaleak.com (KWA Leaklist (E-mail))
Date: 97-08-23 07:58:04 EDT

From: Chuck NeSmith [SMTP:cnesmith@ix.netcom.com]
S-ent: Thursday, August 21, 1997 5:53 PM
To: leaklist@kwaleak.com
Subject: Bladder Systems

My name is Charles NeSmith and I work for the California State Water
Resources Control Board. A manufacturer of bladder systems has
equested that the SWRCB rescind the requirement in California that
der systems must also include a 1/8" thick interior coating on the

ost tank. The SWRCB included this requirement in the 1994 regulation

r concerns about internal corrosion. Anyone who has any thoughts o

this matter please contact me at cnesmith@ix.netcom.com.

Additionally, any manufacturers of bladder systems who wish to send me

information on their product, please do so by mailing the info to:

Charles NeSmith
State Water Resources Control Board
2014 "T" Street, Suite 130
Sacramento, CA, 95814

Thank you!

Page: 10
To: cnesmith@ix.netcom.com (Receipt Notification Requested)
From: JIM.WADA@mail.co.ventura.ca.us
Subject: UST Bladder Systems
Date: 9 Sep 97 14:51:00 -0700

Ventura County Environmental Health Division (VCEHD) has reviewed the Bladder system letter dated September 4, 1997, from the SWRCB. VCEHD's opinion is lining a tank prior to installation of a bladder system is unecessary. If the tank is properly cleaned of product, sludge, and scale futher internal corrision should be at a miinimum if the bladder does not leak and the vacuum system is properly functioning. Exterior corrosion protection is still necessary for a single wall steel tank.

Additionally, VCEHD views any secondarily contained tank as being superior to a single wall tank.

VCEHD has a facility that would install bladders if the lining was not necessary, so please inform this agency if a decision is made within the next two weeks.

This topic should be brought to the attention of the California Fire Chief's Association.

If you have any questions, please call me at (805) 654-2435.

Jim Wada
Ventura County Environmental Health Division
Hazardous Materials Section

Message: 12
<cnesmith@ix.netcom.com>
m: jclark@humgate.co.humboldt.ca.us
Subject: Bladder System Comments
Date: Thu, 11 Sep 97 16:40:42 -0800

The Humboldt County Division of Environmental Health does not object
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o=20
installation of U.L. approved flexible bladder systems in unlined stee
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underground motor fuel storage tanks which are not fiberglass reinforc
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d plastic=20
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=B7 The containment system is at least as protective to the environme
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t as the=20
current standards, as shown by independent scientific evaluation.
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=B7 All other 1998 upgrade requirements are met.

=B7 Such installation is approved by the State Water Resources Contr
o=
l =20
Board
=

k age: 14
"... <cnesmith@ix.netcom.com>
[redacted] <john_woolley_at_county-po@mail.co.humboldt.ca.us>
F...m: jclark@humgate.co.humboldt.ca.us
Subject: More on tank bladders
Date: Fri, 12 Sep 97 09:43:26 -0800

The position statement that I sent to you yesterday was designed to pr
ovide a
record of where Humboldt County Division of Environmental Health "Offi
cially"
stands on this issue in relation to state regulations and local politi
cs.
Details were left out for the sake of simplicity.

We recently received a letter from the owner of an independent conveni
ence store
with two 4,000 gallon tanks installed in 1984. They are probably in v
ery good
condition. He wanted to know why he had to line the tanks before he c
ould
install a bladder system. My answer was that EPA had determined that
a bladder
system in an unlined steel tank without coating or cladding was less p
rotective
than tank lining alone. This has not been stated by EPA to my knowled
ge, but it
is inferred.

My own opinion is that a bladder system in an unlined tank probably pr
ovides
about the same level of protection as lining. I have no data to back
that up,
th[redacted]gh.

[redacted]strive to offer the members of our regulated community all options
available
under the law. We do not wish to see otherwise viable options limited
without
good cause.

Jim Clark
Humboldt County UST Program

Office of Underground Storage Tanks

WAIT 1998

Facsimile Cover Sheet

To: Chuck NeSmith **Date:** 8/28/97

Office: State Water Resources Control Board

Phone: 916 227 4377 **Fax:** 916 227 4349

From: David Wiley

Phone: 703 603 7178 E-mail: wiley.david@epamail.epa.gov

Comments: Hope this helps.

DW

No. of pages (including this cover sheet): 7

EPA Ofice of Underground Storage Tanks www.epa.gov/OUST/

U.S. Mail:
401 M. Street, S.W.
Washington, D.C. 20460
Fax Number: (703) 603-9163

Deliveries:
1235 Jefferson Davis Hwy, 13th Floor
Arlingtron, VA 22202

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

JUL 9 1992

Mr. John Hendershot
World Enviro Systems, Inc.
P.O. Drawer 789
Shawnee, Oklahoma 74802

Dear Mr. Hendershot,

This is to respond to your attached letter of March 19, 1992, requesting "EPA's acceptance of the World Enviro Systems, Inc. flexible membrane internal containment/vacuum monitor system for single wall steel or fiberglass tanks as secondary containment with interstitial monitoring..." Unfortunately, EPA does not test, certify, or approve specific brands or products. What follows, however, is a clarification on how EPA's Underground Storage Tank (UST) regulations apply to the *type* of system described in your letter. It has been reviewed by representatives of EPA's Office of General Counsel, and of State and EPA Regional UST programs.

In summary, flexible internally fitted liner systems can be shown to meet the *Federal* requirements for release detection (but *not* for upgrading or repairing) for both petroleum *and* hazardous substance USTs *if* certain conditions are met. Please refer to the discussion below.

<u>Background</u>

Based on information you have provided, our understanding of the type of system at issue is as follows. The system includes a flexible non-metallic internally fitted one piece liner. This liner is situated inside a steel, fiberglass-reinforced plastic or composite UST, and covers the entire inner surface of the tank. There is continuity throughout the interstitial space such that both vapors and liquids can migrate from any part of the interstice to another. The system maintains a vacuum in the interstitial space and triggers an alarm when conditions indicate a breach in any portion of either the liner or in the tank outside the liner. Piping is not addressed by the system.

We further understand that there are currently no codes of practice or standards developed by nationally recognized

associations or independent testing laboratories for the design, construction, installation, testing, or maintenance of flexible liners specifically for the storage of petroleum or other regulated substances.

Our clarification is based on the above understandings and may not apply to other types of systems. Also, please note that State and local requirements can differ from EPA's.

Release detection for petroleum underground storage tanks

Internally fitted liners are specifically addressed in section 280.43 -"Methods of release detection for tanks." Section 280.43(g) allows interstitial monitoring to be used if the system is designed, constructed and installed to detect a leak from any portion of the tank that routinely contains product, and 280.43(g)(3) allows internally fitted liners, provided that "[f]or tanks with an internally fitted liner, an automated device can detect a release between the inner wall of the tank and the liner, and the liner is compatible with the substance stored." Compatibility is also required in Section 280.32, which requires that "owners and operators must use an UST system made of or lined with materials that are compatible with the substance stored in the UST system."

Compatibility testing and documentation can assure owners and operators that a liner is compatible with the material to be stored. There are many test methods available (including EPA's SW-846 Method 9090A) and the data you provided cover many years of testing. EPA does not, however, determine whether or not a particular liner is compatible with any substance or blend which could be stored in UST systems.

However, if the liner is compatible with the substance stored and monitored at least every 30 days as required in section 280.41, a system incorporating a flexible membrane could be shown conclusively to meet the release detection requirements for petroleum USTs.

Release detection for hazardous substance USTs

A *hazardous substance UST system*, which is defined in section 280.12, must currently meet, at a minimum, the requirements for a petroleum UST plus additional requirements for hazardous substance UST systems found in section 280.42(b)(2). New systems must meet the additional requirements now; existing systems must meet the additional requirements by December 22, 1998. These additional requirements include secondary containment systems which must be designed, constructed, and installed to:

- contain regulated substances released from the tank

system until they are detected and removed;

- o prevent the release of regulated substances to the environment at any time during the operational life of the UST system; and
- o be checked for evidence of a release at least every 30 days.

The regulations note that the provisions of 40 CFR 265.193 (a portion of the regulations promulgated pursuant to Subtitle C of the Resource Conservation and Recovery Act that is applicable to tanks storing *hazardous wastes*) may be used to comply with these requirements. We consulted with representatives of EPA's Office of Solid Waste (OSW), who could not state without more extensive review that flexible membrane internal containment systems would meet the requirements of section 265.193. They further recommended that, since most States are authorized to operate their hazardous waste programs, inquiries should be made to the individual states. OSW also recommended the Technical Resource Document for the Storage and Treatment of Hazardous Waste in Tank Systems (EPA/530/SW-86-044, National Technical Information Service PB86-219417/AS) as a helpful resource.

This means with bladder systems are secondary containment

Although compliance with the hazardous waste tank regulations is unresolved, resolution of this question is not necessary to determine compliance with the UST regulations. We believe that a system which incorporates a flexible membrane as described above could meet the requirements of integral secondary containment for both petroleum *and* hazardous substances if the outer tank is in compliance with all other applicable requirements, including new tank standards now in effect and upgrading standards due to take effect in 1998.

Upgrading of existing UST systems and repairs allowed

This means that bladders are not "corrosion protection" per Fed regs.

Section 280.21 requires that, as of December 22, 1998, all tanks must meet new UST system performance standards, upgrading requirements, or closure requirements. The addition of a flexible liner system alone is *not* sufficient to meet either the requirements of this section for upgrading, or the requirements of section 280.33 for repairs. These sections require adherence to a code of practice developed by a nationally recognized association or independent testing laboratory, and we know of no such standards developed for the type of system described above.

Conclusion

A system with an internally fitted liner and an automated detection device matching the description above may be capable of meeting the Federal requirements for release detection for both petroleum and hazardous substance USTs if the liner is compatible with the substance stored and if an automated device triggers an

alarm when any portion of either the outer tank or inner liner is breached. This same system cannot presently meet Federal requirements for upgrading or repairing existing UST systems.

Many leak detection methods are evaluated against standard test procedures to verify performance. Although such an evaluation is not required by EPA's regulations, it may help owners and operators and State and local governments judge how a system will meet particular needs.

The Office of Underground Storage Tanks encourages innovative approaches to UST problems. We also recognize the importance of nationally recognized associations and testing labs, and encourage developers to work with them in evaluating and documenting the performance of new systems. EPA labs are not currently involved in this area.

Thank you for contacting us and providing us with background information. If you have any questions, please contact David Wiley of my staff at (703)308-8877.

Sincerely,

David W. Ziegele, Director
Office of Underground Storage Tanks

Attachment

cc: UST/LUST Regional Program Managers
Dawn Messier, OGC
Chester Oszman, OSW
Joe DLugosz, EMSL - Las Vegas
Anthony Tafuri, RREL, Edison
Barbara Simcoe, ASTSWMO
Josh Baylson, OUST
William Lienesch, OUST
David Wiley, OUST

World Enviro Systems, Inc.

P.O. DRAWER 789, SHAWNEE, OK 74802
PHONE (405) 275-7565 FAX (405) 275-3900

March 19, 1992

Rec'd 3/27/92 DRW

Mr. David Wiley
U. S. Environmental Protection Agency
Office of Underground Storage Tanks
401 "M" Street S.W.
Washington, D. C. 20460

Dear Mr. Wiley:

Re: Hazardous Waste-Secondary Containment w/ Interstitial Monitoring.

This is to request EPA's acceptance of the World Enviro Systems, Inc. flexible membrane internal containment / vacuum monitor system for single wall steel or fiberglass tanks as secondary containment with interstitial monitoring for hazardous waste tanks.

There is uncertainty among state regulatory agencies as to how to classify this product. The fact that the WESI internal containment method converts a single wall tank to function as both, 1> a double-walled tank or equivalent device (Secondary Containment) and 2> as a continuous leak detection system (interstitial Monitor) cause wide confusion.

State regulators seem to consider secondary containment and interstitial monitoring as individual systems and tend to consider the WESI method as one or the other. The WESI method combines both systems, converting a single-walled tank to function precisely as a double-walled tank with interstitial monitoring.

EPA Rules for Hazardous Waste Tank Systems clearly define the WESI method; #265.193(e)(3)(i) - as a Double-Walled tank or an equivalent device (an inner tank within an outer shell) and, (iii) provided with a built-in, continuous leak detection system.

Attached hereto is a 3 page review of EPA rules, Section #265.193, July 1, 1990 Edition which support the technology of a double-walled tank with "a built-in leak detection system". Those rules that appear to have some relationship to the WESI method are listed on the left side of the page. An explanation of how the WESI method "fits" the rule is listed on the right side of the page. There is a 4th page that outlines some background information, listed in the same manner.

In going through our old files selecting information for CMRI I ran across a letter to the National Environmental Research Center dated June 3, 1972. A copy is enclosed.

A photocopy of an old brochure is enclosed. I have numbered some of the pictures and attached a short explanation of the job.

I have found some remaining pictures of our "laboratory" that I am enclosing with explanations.

The enclosed information is only a small portion of what has been accumulated over the years. I did not want to overwhelm you with reading. If there is anything further you would like, please let me know.

We will appreciate a written acknowledgment that the WESI method is recognized and/or accepted by The Environmental Protection Agency as a method of compliance with Rules for Hazardous Waste Systems. Some suggested classifications are;

(a) A double-walled tank with interstitial monitoring.
(b) A device equivalent to a double-walled tank with interstitial monitoring.
(c) Secondary containment with interstitial monitoring.

Thank you for a favorable consideration.

Best Regards,

John Hendershot

HT Technologies

August 21, 1997

Mr. Chuck NeSmith
California Water Resources Control Board
Sacramento, California

Via Fax 916 227-4349

Dear Chuck:

As we discussed, I am sending you copies of the preamble to the 1989 federal regulations concerning corrosion failures.

While the entire preamble is very informative of the thought processes, data available and sources of information, throughout the document, I would like to call your specific attention to page 37128 of the Federal Register, September 23, 1988:

"The results of this study and other information lead the Agency to believe that the incidence of steel tank failures due to internal corrosion is probably less than 10 percent of the total tank universe, that it occurs most often in smaller tanks, and that it takes place later in the operational life of these tank systems. The few cases of internal corrosion holes that were witnessed in this study appeared to be generally located at the bottom of the tank fill pipe opening and often could have been prevented if striker plates had been used."

Two items that I would like to point out on the issue of internal corrosion. First, we inspect for it. If it is there we will identify it and require the appropriate repair whether by lining, filling with epoxy or welding as permitted by the local authority. This is certainly in our interest to prevent call backs.

The second item relates to how tanks, including new double wall steel tanks are and have been made since 1988. Steel tanks are made with striker plates. Our system also puts in UL approved striker plates. The new tanks are not interior coated when used for petroleum and alcohol fuels. They have external corrosion protection, whether made of one wall or of two walls.

We are asking basically for the same treatment under the regulations—no internal lining where external corrosion protection by installing cathodic protection is used with a system that provides primary and secondary containment with interstitial monitoring. This regulatory change will make upgrading to secondary containment with interstitial monitoring as affordable to tank owners as just installing internal lining and external corrosion protection.

I appreciate your willingness to investigate this matter and our company will assist your office with any additional information which we can provide as you may request.

Sincerely,

Hersch Caudill
President

cc: Paul Schobert

HT Technologies LLC
4360 Brownsboro Rd. • Suite 230 • Louisville, KY 40207
Ph. 1-888-287-9595 • Ph 502-893-4008
Fax 502-893-4009

cathodically protected. Today's rule specifically requires the corrosion protection of operational underground piping and components that are in contact with the soil and convey product to or from the tank (e.g., flexible connectors, swing joints, pipe fittings, and impact valves), whether in metallic or FRP piping runs. Nonoperational components, such as vent and vapor recovery lines, on the other hand, need not have corrosion protection because these components should never contain free liquid product, particularly under today's requirements for overfill prevention (see § 280.30). Metallic components, such as swing joints, do not need cathodic protection if they are placed in pump housings and are not in contact with the ground.

The Agency also invited suggestions on the use of pipes other than FRP and corrosion-protected steel pipe. One commenter suggested use of copper tubing. Today's rule allows copper tubing under two circumstances. First, copper piping would be allowed if a corrosion expert determines that the site is not corrosive enough to result in a release during the operational life of the piping. Second, copper piping would be allowed if the design and construction methods and corrosion protection are determined by the implementing agency to prevent the release of any stored substances in a manner no less protective of human health and the environment than the requirements in 280.20(b) (1), (2) and (3).

c. *Spill and Overfill Control (§ 280.20(c)).* Design and construction requirements for new UST systems include spill and overfill equipment requirements. These additional requirements are discussed below in section IV.C.1., "Spill and Overfill Control."

d. *Other Issues. (1) Internal Corrosion.* In the preamble to the April 17 proposal (52 FR 12699), EPA solicited comments on whether internal corrosion could become a major source of failure. EPA requested comments based on the industry's field experiences with internal corrosion protection systems in terms of design, installation, efficacy of performance, and problems found. EPA also requested information on the need for internal corrosion protection and whether it should be required, particularly for all new steel UST systems.

The Agency has received several comments on this issue. Many expressed the opinion that internal corrosion is one of the causes of tank leaks. Some suggested mandating internal tank lining to reduce or to eliminate internal corrosion and thereby prevent leaks. Some suggested that EPA require the use of striker plates below fill and gauge fittings. A few suggested requiring the use of soft-tipped inventory dipsticks. Some commenters took the position that internal corrosion is not a problem and should not be regulated.

EPA agrees with the commenters who argued that tank lining will reduce the incidence of failures resulting from internal corrosion. The Agency is not, however, mandating the requirement of tank lining on new tanks because it has concluded that striker plates, now required under the consensus codes, solve the problem. At present, evidence is limited concerning the potential of internal corrosion to cause newly constructed tanks to fail. Estimates of the incidence of internal corrosion-induced tank failures range from 5 to 60 percent of the total steel tank population. Several tank lining companies submitted data that indicate internal corrosion is a significant cause of release. By contrast, internal corrosion was not found to be a significant cause of release in an EPA-sponsored study of over 400 tank closures carefully investigated by Suffolk County, New York, health department officials. The results of this study and other information lead the Agency to believe that the incidence of steel tank failures due to internal corrosion is probably less than 10 percent of the total tank universe, that it occurs most often in smaller tanks, and that it takes place later in the operational life of these tank systems. The few cases of internal corrosion holes that were witnessed in this study appeared to be generally located at the bottom of the tank fill pipe opening and often could have been prevented if striker plates had been used. These findings are corroborated by numerous tank manufacturers who submitted comments on the proposal, citing their collective experiences that internal corrosion is not a problem on tanks equipped with striker plates. Many of them suggested that the use of striker plates below the fill and gauge fittings will protect the primary location where internal corrosion occasionally breaks through.

EPA agrees with the commenters who believe that striker plates can largely eliminate the internal corrosion problem. The final rule, however, does in effect, require the use of striker plates because they are standard on new steel tanks and included in the referenced codes of practice developed by nationally recognized associations or independent testing laboratories. The Agency agrees with commenters who suggested that the use of soft-tipped dipsticks will also reduce internal corrosion. The final rule does not, however, include this alternative because it is not needed with striker plates now standard on all tanks.

(2) Manways. The Agency requested comments and information about the required use of manways on top of new tanks and whether traditional "bunghole" systems of tank entry would result in a significant reduction in releases. Several comments were received by EPA on this issue. Commenters were divided on the requirements of manways. Some of them felt that manways do not reduce the number of leaks, but may instead add another potential source of release. Some felt that the requirement of manways is necessary because a number of costly release investigations can be avoided by manual inspection from inside a tank. A few commenters supported manways but felt that their use should not be mandated.

EPA agrees with the commenters who recommended manways as a sound practice but believed they should not be required in the final rule. Although manways facilitate the manual inspection of the interior of a tank, other forms of release detection make internal inspections and, thus, the use of manways unnecessary (see discussion in section IV.B.2.g.(2), concerning internal inspections and release detection).

2. Installation (§§ 280.20 (d) and (e))

a. *Overview.* As was discussed in the preamble to the April 17 proposal (52 FR 12700–12702), improper installation is often a cause of release from various components of the UST system. The public comments on the original proposal and on the Supplemental Notice (December 29, 1987) have reinforced the belief that proper installation is critical to preventing releases from the UST system. The new causes of release information obtained by the Agency since proposal (which is discussed in section II.F.2. of this preamble) indicates that improper installation is one of the major causes of underground storage tank and piping failures. Additionally, the majority of industry experts felt that improper installation causes many of the piping failures. Though the reported failure rates of FRP and protected-steel tanks are very low, failures that have occurred are usually related to improper installation.

Some of the installation practices that have been identified as leading to UST system releases include: Non-homogeneous backfill, which is often

Estimate of Tight/Non-Tight UST Systems

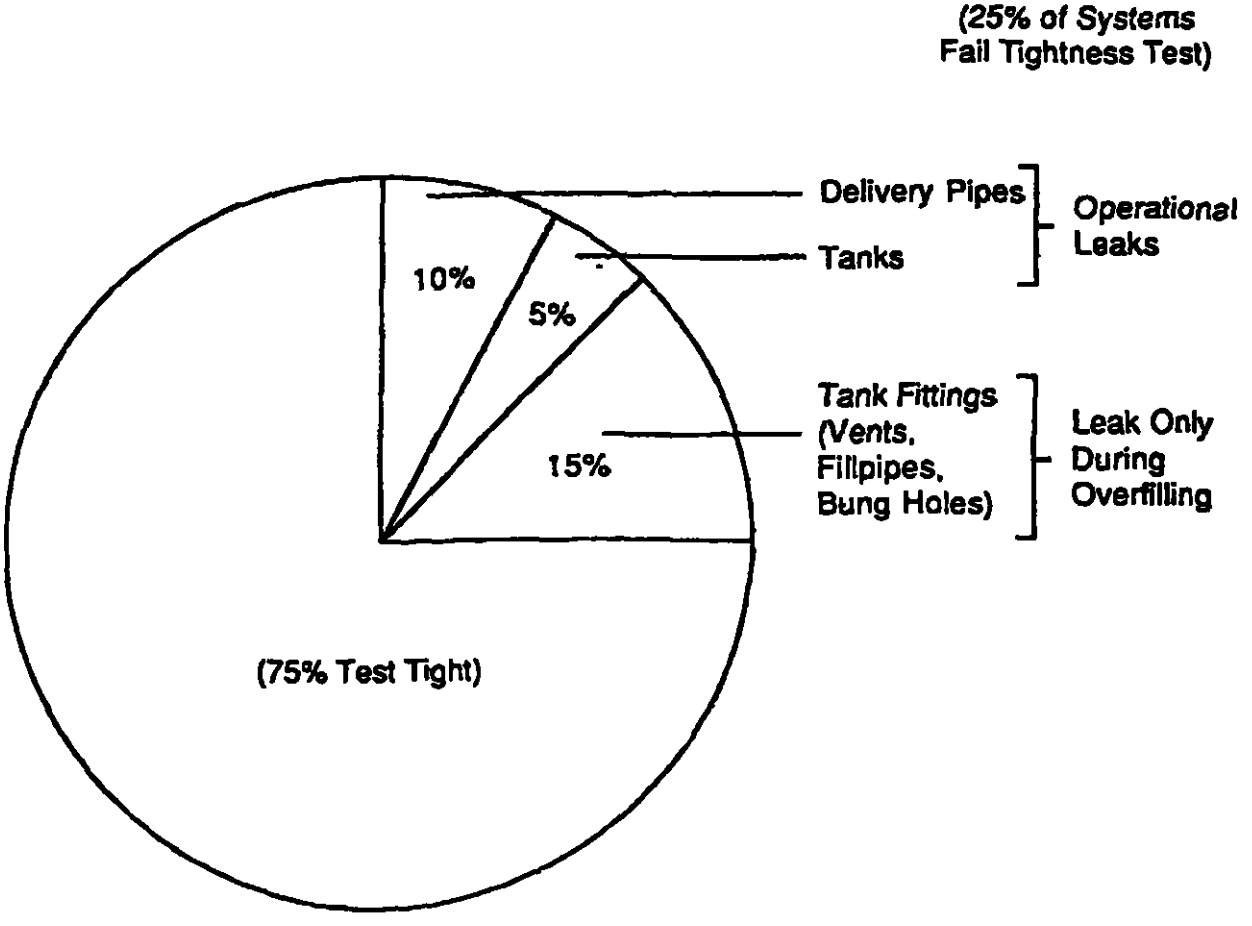

Figure 2

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Figure 1 does not illustrate several other requirements and standards proposed for both new and existing UST systems: The design and installation of new UST systems; spill and overfill prevention; UST system repair; system closure; release detection methods and performance; and release confirmation, reporting, and response (including corrective action requirements). These proposed requirements and the manner in which they may have changed in the final rule are described in detail later in today's preamble. Several major points of departure from the proposal are identified and discussed in section III below.

D. Public Comment on the Proposal

EPA received over 5,000 individual comments from over 1,100 commenters on the April 17 proposal, including verbal and written comments from the three public hearings. In general, these public comments supported the Agency's overall approach to the proposed regulations and the substantive requirements for new and existing UST systems.

Many comments addressed specific parts of the proposed rule, suggesting changes or calling attention to potential problems. These specific comments are discussed below in today's preamble. In summary, many comments tended to center on three areas: Concern for the impact the UST rule would have on small businesses, calls for EPA to adopt more stringent requirements for certain sensitive areas, and suggestions on the best way to phase in release detection. (See the corresponding sections in today's preamble for a full discussion of these comments.) The financial responsibility requirements generated more public comment than any other single area. Comments on this issue will be addressed in the financial responsibility final rule that will appear in a later Federal Register.

E. Summary of the Supplemental Notice and the Notice of Availability of New Information

After the April 17 proposal appeared, EPA realized that some aspects of the technical standards needed to be clarified and that more public comment on these matters was needed. Consequently, EPA published a Supplemental Notice on December 23, 1987 (52 FR 48638). This Supplemental Notice dealt with four areas pertaining to the proposed technical requirements:

(1) Use of "static inventory control" to monitor used oil UST systems;

(2) A listing of substances subject to petroleum UST standards;

(3) Alternatives to release monitoring for piping and tanks protected from external corrosion; and

(4) An alternative definition of "flow-through process tank."

Public response concerning these issues is discussed in later sections of this preamble.

On March 31, 1988, EPA published a Notice of Availability of additional information for public comment. It announced the availability of information pertaining to several technical areas of the proposed rule including general operating requirements, release detection and tank closure. This new information was submitted by commenters, gathered in meetings or conferences and produced by Agency research programs. Few public comments were provided concerning these documents.

F. Influences on the Final Rule

In the preamble to the April 17 proposal, the Agency discussed the scope and nature of the problem posed by UST systems and several important influences on the development of the proposal (52 FR 12665–12671). Today's final rule builds on that earlier information and has benefited from numerous comments provided by the public on the issues highlighted in the proposal. The following section briefly discusses several areas that have received further consideration from EPA in the development of today's final rules.

1. Scope of the Problem

The preamble to the proposed rule (52 FR 12665) presented estimates of the number of leaking UST systems based on EPA studies, local government experiences, and industry estimates. Among the statistics cited were the percentage of systems failing tightness testing, the percentage of systems actually leaking, the correlation of tank age to failure, and the extent and impact of soil and ground-water contamination from USTs. After the proposed rule was issued, EPA completed an additional study of the causes of release from UST systems. This new study was placed into the public docket and announced as available for comment in the December 23, 1987, Supplemental Notice. This study, "Causes of Release from UST Systems," and the public comments on it were important in developing today's preamble and final rule.

a. *Current Estimates of "Non-Tight" UST Systems.* In the preamble to the proposal (52 FR 12665), EPA cited evidence that numerous UST systems are non-tight and may be leaking. This evidence was based largely on three studies: EPA's "Underground Motor Fuel Tanks: A National Survey" reported tank tightness testing results and found that 35 percent of over 450 tank systems surveyed nationwide failed tightness testing; Suffolk County's UST program data revealed that 26 percent of over 6,000 tank systems tested in this New York county failed; and a Chevron-sponsored testing program found that nearly 10 percent of over 3,000 of their UST systems failed.

Commenters responding to the proposal who had experience with tightness testing provided various claims that between 11 and 48 percent of existing UST systems failed under test conditions. In an EPA-sponsored meeting, a group of experienced, independent installation contractors expressed their expert judgment that increased awareness of the UST problem, use of better tanks, and use of better installation and maintenance procedures have decreased the probability of present-day systems testing non-tight to about 20 percent, in contrast to the 50 percent of UST installations they believed would have tested non-tight several years ago.

After publication of the proposal, EPA studied several additional pieces of information concerning causes of release from UST systems. For example, EPA further reviewed the records of over 10,000 tightness test results from local UST programs (in Suffolk County, New York; Austin, Texas; and San Diego, California). EPA also analyzed an extensive and detailed historical set of records from a Texas tank testing company (the Service Station Testing Company of San Antonio, Texas). The EPA-sponsored report, "Causes of Release from UST Systems," is based on all these data and concludes that approximately 25 percent of existing UST systems are found to be non-tight when tested using current methods and that loose tank fittings or faulty piping causes 84 percent of these tightness test failures. Figure 2 summarizes the Agency's findings concerning the causes-of-release profile as derived from tank testing results and documented follow-up at over 10,000 UST systems conducted nationwide.

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b. *Estimated UST Systems with Releases.* Current indications concerning the number of UST systems nationwide that have had releases in the past or are now leaking are less precise than the tank tightness data, but the Agency believes the information that is available is significant nonetheless. As discussed in the preamble to the proposed rule, in many places in the nation that are still without state or local UST regulatory programs today, release detection only takes place when someone sees or smells the release (52 FR 12665). These historical data suggest that only about 10 percent of release incidents in these areas are discovered by inventory controls or mechanical release detection methods. Although the large number of incidents that are known to threaten or have contaminated ground-water wells is significant, it is not an accurate prediction of leaking UST systems because most UST systems are not located near wells.

As the result of aggressive UST monitoring programs in two states, over 5,000 UST sites in California and 3,000 sites in Florida have been identified as having had releases during the past three years. These recent discoveries already exceed 10 percent of the number of UST sites in each of these states, and the number of releases identified in just these two states may soon exceed the cumulative total of releases reported to all the states up until 1985 (see 52 FR 12665). At a more local level, UST system programs in Dade County, Florida, and San Jose, California, have also identified (through required release detection and system closure procedures) that well over 10 percent of their UST facilities have had some noticeable or significant releases into the surrounding soil and groundwater. Thus, the initial findings by state and local UST regulatory programs that are particularly aggressive appear to corroborate an industry-sponsored study (than previously cited Chevron investigation) that found approximately 10 percent of their 1,000 UST facilities located throughout the South and Southwest of the United States have had an adverse impact on nearby ground water in the form of released product floating on top of the ground-water table (see 52 FR 12666).

Public comments received in response to the proposal concerning this subject are not conclusive. Some industry sources provided very low estimates, claiming that from 0 to 3 percent of UST systems have had releases. Others claimed the actual number of leaking tank systems could be as high as 50 percent in some areas. Many estimated that the actual range is somewhere between 8 to 20 percent of UST sites, and the average of all estimates reported by commenters falls into this range. As shown in the previous figure (Figure 2), approximately 25 percent of all systems are now testing as non-tight. About 15 percent of the sites whose systems were tested actually proved to have a leak under normal operating conditions (tank and delivery piping leaks), and this proportion falls within the above-estimated range provided by the commenters.

Some commenters attempted to provide additional insight into the relationship between tank age and failure by indicating that tanks begin to fail tightness tests (and leak) at a much greater frequency after 12 years. In addition, the recent EPA causes-of-release study includes one study that indicated 10 to 13 percent of the tanks that are 12 to 13 years old were non-tight. This is more than double the proportion of non-tight tanks tested in other age groups. In another study, of the tanks actually found to be leaking, 42 percent of the leakers were 15 to 20 years old, and 30 percent of the leakers were 10 to 15 years old. All of the tanks that were leaking were made of bare steel. This demonstrates that the critical age in a typical unprotected steel tank's life is the period between 10 to 20 years of age when breakthrough from corrosion is most likely to begin.

Some commenters disputed the severity of the threat posed to the nation by leaking UST systems, which was discussed in the preamble to the proposed rule. For example, one suggestion was that the data presented in the preamble indicate less than 0.008 percent of the total area of the United States is affected by contamination due to leaking UST systems. In general, EPA finds this line of reasoning unpersuasive. In particular, this argument ignores, (1) that population density in the nation is not uniform (with most areas being sparsely populated or unpopulated); (2) that tank systems are generally located near populated areas to provide the fuel for these centers of human activity and; (3) that there are numerous documented cases of drinking water wells that have been threatened or already destroyed by leaking UST systems nationwide. The dispersal of leaked contaminants within ground-water aquifers can also affect an area many times larger than the soil-contaminated area. Further information gathered over the coming years of UST program implementation will ascertain the full magnitude of the impacts that leaking UST systems pose in terms of contamination to the nation's environment, but EPA concludes that the evidence collected to date, including the information provided by commenters on the proposal, clearly supports the need for today's final rules.

2. New Cause-of-Release Information

EPA's new information concerning releases from UST systems comes primarily from public comment and an EPA-sponsored study ("Causes of Release from UST Systems") that was made available for public comment in the December 23, 1987, Supplemental Notice. Review of this information has resulted in the following findings concerning the major causes of releases today:

- Most releases do not come from the tank portion of UST systems, because piping releases occur twice as often as tank releases;
- Spills and overfills are the most common causes of releases;
- Various nonoperational UST components at the top of USTs are loose and leak in the event of overfills;
- Although the older bare steel tanks fail primarily by corrosion, the "new generation" USTs (i.e., coated and cathodically protected steel, fiberglass-clad steel, and fiberglass tanks) have nearly eliminated failure induced by external corrosion;
- Corrosion, poor installation techniques and workmanship, accidents, and natural events (e.g., frost heaves) are the four major causes of failure for piping; and
- When piping fails, pressurized systems pose a significant added threat of sudden, large releases.

Thus, the major causes of releases from UST systems are due to failures of unprotected tanks, leaks in delivery piping, leaks from vent pipes and fittings on top of the tank, and spill and overfill errors. Comments received on the original proposal (52 FR 12665–12668) and the Supplemental Notice concerning causes of release generally tend to corroborate the above findings. The following information summarizes some of the most relevant findings that are important in guiding today's standard-setting.

a. *Tanks.* Most existing tanks are made of bare steel. Numerous tank failure histories indicate that when bare steel tanks fail they almost always do so because of external corrosion. Of all of the current causes of release, corrosion of bare steel (tanks and pipes) is by far the most important.

Tank manufacturers have responded to this problem with a "new generation"

of tanks. Innovative tanks began to appear about 20 years ago in the United States in three basic forms: Fiberglass-reinforced plastic (FRP); steel with a corrosion-resistant coating and cathodic protection; and steel-FRP composite. A dramatic acceleration in the use of new generation tanks occurred with the introduction of the federal law's "Interim Prohibition" three years ago. These protected tanks now are estimated to account for about 20 to 25 percent of existing USTs. Although "new" in terms of protective designs, some of each of the new types of tank systems have been in the ground for over 20 years. Reported failures observed in the field due to corrosion (or other reasons) are very rare.

Failures (leaks) at all existing FRP tanks appear to have occurred at less than a rate of 0.05 percent per year of the total FRP tanks installed nationwide. Many commenters and other sources support the field estimates collected by EPA that less than 0.5 percent of the total number of existing FRP tanks have ever leaked. Although some installation-related failures have occurred in the past, heightened installer awareness of proper practices and techniques appropriate to FRP technology, manufacturer-sponsored contractor education programs, and production quality assurance appear to be responsible for a consistently decreasing failure rate of FRP tanks. The most important reported failure mode for these tanks is improper installation practices.

One new tank type, the STI–P3, is a favorite of corrosion engineers. These steel tanks have an external noncorrodible coating and a factory-applied metal anode that sacrifices itself to protect any bare spots on the tank, and the tank vessel is electrically isolated from any attached piping. Very few failures have ever been reported, and those failures are due to installation damage or improper maintenance, not design. In Ontario, Canada, where STI–P3 tanks have been widely used, the number of tank releases due to corrosion is reported to be declining as old tanks are replaced with STI–P3 tanks.

The steel-FRP composite tanks have not been used as widely as either the FRP or coated and cathodically protected tanks described above. Approximately 65,000 have been installed in this country. No corrosion-related failures have been reported. Many commenters suggested that this type of tank has several advantages over both FRP and coated and cathodically protected steel tanks, such as durability, no need for maintenance, and an added barrier between the tank and the environment should the steel tank be breached by internal corrosion.

As the threat of external corrosion is reduced by new tank designs, internal corrosion may eventually become the primary cause of failure for steel tanks. Internal corrosion, however, occurs far less frequently and takes longer to manifest itself than external corrosion. Many commenters have reported problems with internal corrosion under the drop tube (i.e., fill pipe located within the tank) of steel tanks. Data submitted from the tank lining industry confirm these reports. The tank manufacturing industry, however, began to respond to this problem several years ago by including "striker plates" under all openings of their new tanks.

Lining tank interiors is another way to prevent releases due to internal and external corrosion. Tank interior lining has been employed by major corporations and small businesses both as a short-term solution for potentially leaking tanks and as a preventive measure for temporarily giving structurally sound, non-leaking existing tanks the same protection from corrosion-induced releases that "new generation" tanks have. Data indicate this to be a successful procedure for extending an existing tank's operational life. Even when employed in the absence of external cathodic protection, failure rates are reported to be very low, apparently because current industry consensus codes only recommend the use of lining when the tank shell is assessed to be able to withstand the expected rate of corrosion at the site (determined by assessing the tank's existing condition).

b. *Piping.* Most commenters rated delivery piping the most significant source of releases and reported releases occurring twice as frequently from piping as from bare steel tank releases. Two types of piping systems are commonly used: Suction piping, which is used in low-volume applications where only a few dispensers are needed; and pressurized piping, which is used in high-volume applications where many dispensers are fed from one tank. Each piping system has unique advantages and disadvantages, discussed below.

Suction piping is considered by commenters to be safer than pressurized piping because it operates at less than atmospheric pressure. If the pipe develops a leak, air or ground water is usually drawn into the pipe instead of product leaking out. Commenters suggested, however, that suction piping systems do not operate efficiently in a number of settings, such as at high altitudes, in hot climates, or in high-volume delivery situations.

Pressurized piping systems reportedly are used at about 95 percent of new retail motor fuel system installations. If the delivery line is breached, free product is released until the pressure in the pipe equals the pressure outside the pipe. Without add-on instrumentation or devices, large volumes of product can be pushed out of breaches in the piping when product is delivered to the pump. Pressurized piping simply pushes more volume to meet this increase in demand, releasing large amounts of product quickly into the environment.

Comments received by EPA indicate that the releases from pressurized piping systems can be catastrophic in the absence of monitoring and automated pump flow restriction devices. Incidents involving releases of thousands of gallons have been reported to EPA by experienced installers. It is estimated that at least 70 percent of the volume of product lost through pressurized pipe releases could be avoided by retrofitting each line with a simple, inexpensive, continuous in-line pressure monitor that automatically restricts product flow in the presence of a significant line leak.

Both suction and pressurized piping are often damaged by external corrosion. Cathodic protection of steel piping would significantly reduce corrosion failures. Presently, most steel piping is protected by galvanizing and coating, or coating and wrapping. The threaded portions at joints are the most common failure points because the protection is removed from them while threading and is never replaced. In these cases, cathodic protection would reduce joint failures. Other joint failures result from untightened joints, cross-threaded joints, or improperly made joints. Improving the installer's education and skills in the complex task of pipe installation would reduce these piping failures.

Also, installers and others have estimated that piping is damaged 10 percent of the time at new installations between the installation of equipment and completion of paving. They strongly recommend that a test of new equipment before start-up is essential as a sound practice, particularly with pressurized piping.

Natural forces and accidents also cause piping failures. The piping is near the surface of the ground and, thus, subject to frost heaves and overloading. In addition, the starting and stopping of product delivery causes the piping to move and shift. This eventually causes joint failure in many piping systems.

CORROSION CONTROL

UST

FLEXIBLE FITTED TANK
&
MONITORING SYSTEM

(Interior Corrosion Control on
Existing Steel Tanks Fitted
with the H T T System)

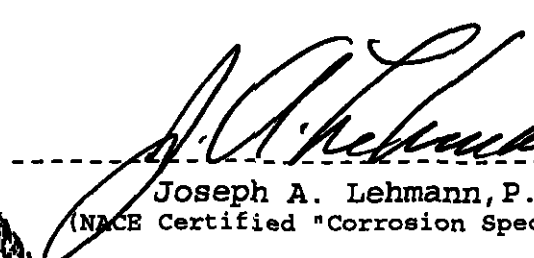
FOR:

H T TECHNOLOGIES LLC

4360 Brownsboro Road
Louisville, ky 40207

Mr. Hersch Caudill, President

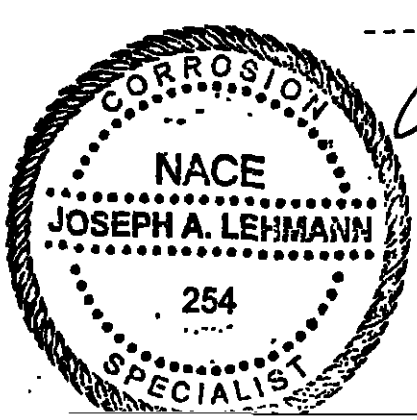
BY:
LEHMANN ASSOCIATES, INC.
22702 Meadowsweet Drive
Magnolia, Texas 77355



Joseph A. Lehmann, P.E.
(NACE Certified "Corrosion Specialist")

July 26, 1997

HTTCOR2.LAI



LEHMANN ASSOCIATES, INC.

22702 Meadowsweet Drive
Magnolia, Texas 77355

281/ 252-0043
(Phone & Fax Same #)
UNDERGROUND STORAGE TANK (UST) TECHNICAL SERVICES

CORROSION CONTROL

UST
FLEXIBLE FITTED TANK
&
MONITORING SYSTEM

(Interior Corrosion Control on Existing Steel Tanks Fitted with the H T T System)

INTRODUCTION:

H T TECHNOLOGIES has requested Lehmann Associates to examine their "Flexible Fitted Tank & Monitoring System" to determine if there is a risk of corrosion attack on the interior steel surfaces of the existing (host) tank. This examination is restricted to a review of the product literature, materials and installation practices. No laboratory or field tests have been conducted in this regard.

THE SYSTEM:

Essentially, the HTT System consists of a "Flexible Tank" installed within an existing tank. There is an "Intermediate (leak detection zone) Layer" between the steel tank and the Flexible Tank (see Schematic Diagram 1). The Flexible Tank and Intermediate Layer are non-metallic.

A suction Leak Detection system is provided to maintain a continuous vacuum between the steel tank wall and the Flexible Tank. In the event the vacuum fails for any reason (i.e. perforation in either the steel tank or the Flexible Tank), an alarm (visual & audible) is activated. (See Schematic Diagram 2)

INSTALLATION:

Part of the installation procedure is to clean and dry the interior steel tank surfaces to remove any dirt, debris and moisture. It is essential for the annular space between the Flexible Tank/Intermediate Layer and the steel tank interior wall to be clean and dry.

After installation is completed, the system is tested ... and placed into operation. A continuous, monitored vacuum is maintained within the annular space. As long as the integrity of the vacuum is maintained (which is essential to the monitoring system), the annular space between the original steel tank interior wall and the HTT Flexible Tank remains clean and free of moisture ... and air tight.

CORROSION:

Corrosion of steel is an electrochemical process ... requiring an electrolyte (i.e., water) and an oxidizing agent (i.e., oxygen). See Appendix "A", "B" and "C". The corrosion is the result of instability in the metal due to energy introduced during its conversion from an ore. Corrosion is the natural process to regain stability ... revert back to an ore (i.e., rust or iron oxide).

If there is no electrolyte (moisture) and no oxygen, there is no electrochemical reaction, hence, no corrosion.

CONCLUSION:

Considering the fact that the interior steel tank walls are kept free of moisture ... and air circulation is prevented (no replenishing of oxygen) ... it can reasonably be concluded that the interior steel surfaces will remain corrosion free.

Obviously, all moisture cannot be absolutely removed. Some slight condensation may occur. This will result in a thin rust film, using up any available oxygen ... after which corrosion will be negligible. Not only will the "initial" rusting deplete the available oxygen, but it forms a tenacious oxide film (alpha oxide) which creates a passivation, resisting further corrosion.

APPLICATION:

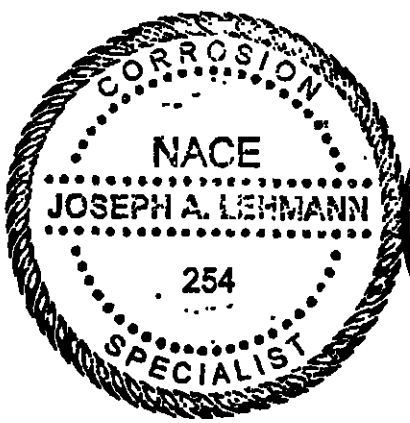
Under these circumstances, interior corrosion on the steel tank can be predicted to be nil. At worst, negligible. Consequently, there is no practical need to provide any interior lining or coating.

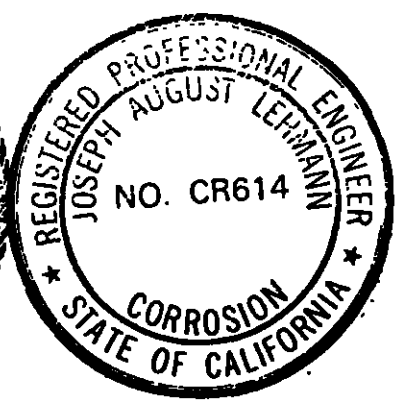
It is, however, highly recommended to provide a cathodic protection system to control exterior (soil contact) corrosion on the steel tank. Such a system should be designed, installed and maintained in accordance with NACE Standard Recommended Practice RP0285-95 (Item No. 21030) "Corrosion Control of Underground Storage Tank Systems by Cathodic Protection."

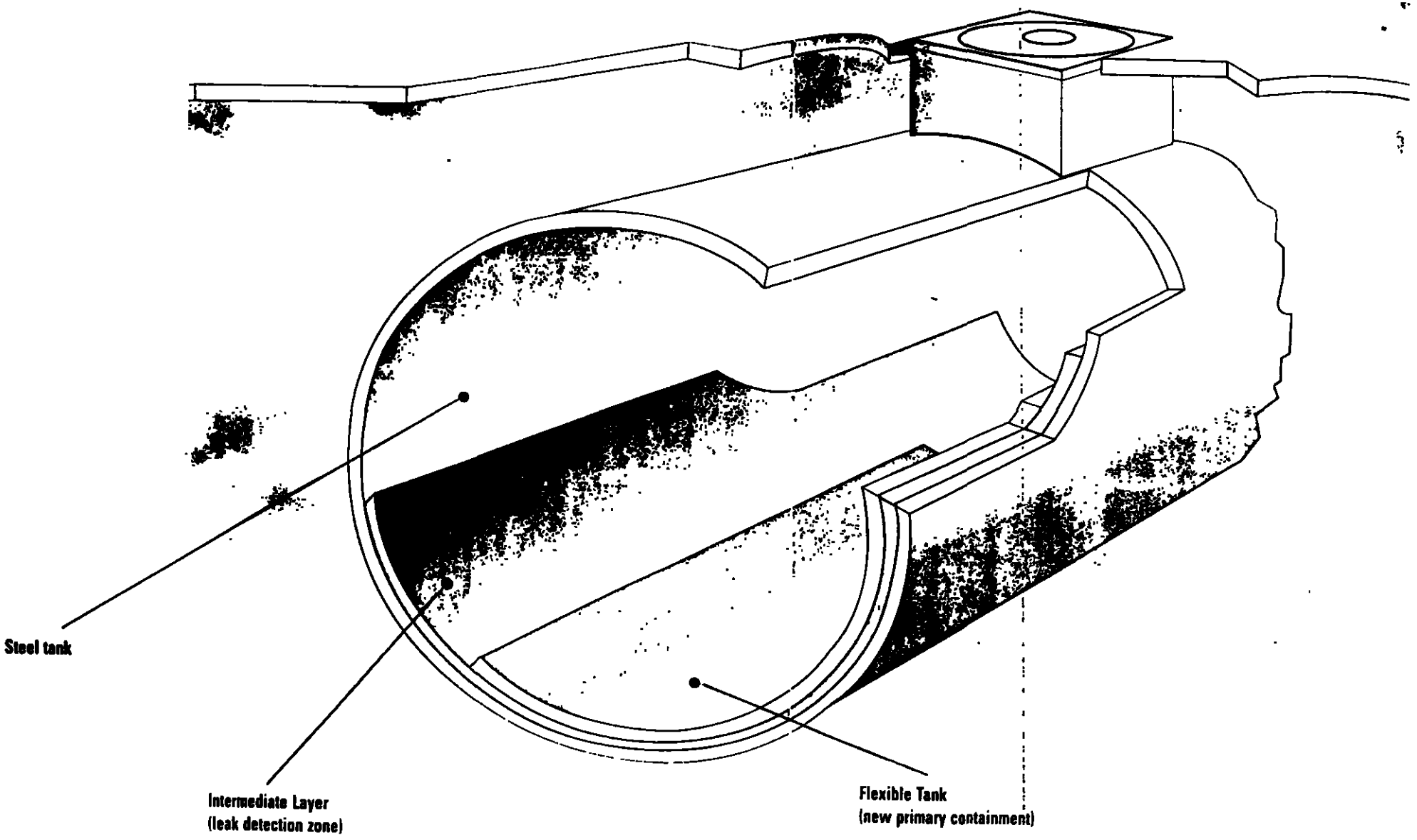
Respectfully Submitted,

Joseph A. Lehmann, P.E.
(NACE Certified "Corrosion Specialist")

HTTCOR1 LAI





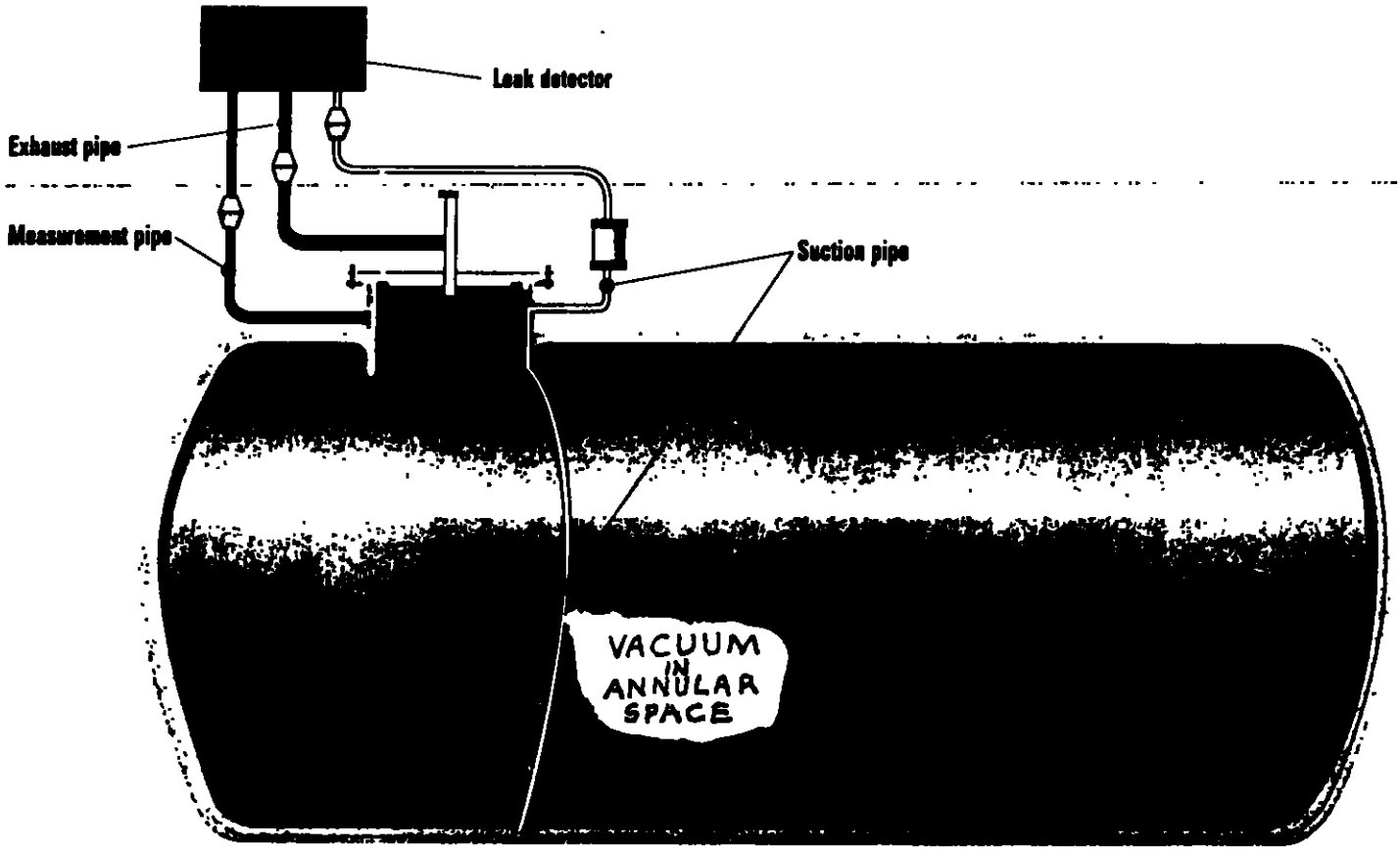


H T TECHNOLOGIES SYSTEM

SCHEMATIC DIAGRAM 1

FLEXIBLE (Interior) TANK

Lehmann Associates, Inc.
22702 Meadowsweet Drive
Magnolia, Texas 77355
281-252-0043



H T TECHNOLOGIES SYSTEM

SCHEMATIC DIAGRAM 2

VACUUM - ALARM

Lehmann Associates, Inc.
22702 Meadowsweet Drive
Magnolia, Texas 77355
281-252-0043

APPENDIX "A"

THE CORROSION HANDBOOK
(page 125)
(John Wiley & Sons, Inc.)

IRON AND STEEL
by
Herbert H. Uhlig, PhD
(Professor of Metallurgy & Director of
Corrosion Laboratory, MIT, Cambridge, MA)

AQUEOUS MEDIA

Effect of Dissolved Oxygen

"At ordinary temperatures, oxygen and moisture are the basic factors necessary for corrosion of iron in neutral or near neutral media. Both must be present simultaneously because oxygen alone or water free of dissolved oxygen does not corrode iron to any practical extent.

Iron corrodes in natural waters according to equations ...

$$Fe \text{ -- } Fe^{++} + 2e^-$$

$$2H^+ + 1/2\ O_2 \text{ -- } H_2O - 2e^-$$

... at a rate usually proportional to the concentration of dissolved oxygen. Water in contact with iron continues to cause corrosion only until the dissolved oxygen is consumed."

APPENDIX "B"

"CORROSION
CAUSES AND PREVENTION"

by

Frank N. Speller, PhD
(Corrosion Consultant)

(McGraw-Hill Book Co. Inc.)

Chapter 2, Page 9

" 1. At normal temperatures iron will not corrode appreciably in the absence of moisture.

2. The presence of oxygen is usually essential for serious corrosion to take place in ordinary water at room temperature. Dissolved oxygen alone will greatly accelerate corrosion in acid, neutral or slightly alkaline water. In natural waters, the rate of corrosion is almost directly proportional to oxygen concentration if other factors are not changed."

APPENDIX "C"

NACE
BASIC CORROSION COURSE

Chapter 2
(page 2 - 6)

Introduction to Corrosion

by

F. L. LaQue

"The oxygen content of any solution ranks high on the list of facts influencing corrosion of iron and numerous other metals. Elimination of oxygen by deaeration is a potent means of preventing corrosion, as in the case of steam boilers which are operated with completely deaerated feed water."

Rohrback Cosasco Systems, Inc.
11841 East Smith Avenue
Santa Fe Springs, California 90670-6201
(562) 949-0123 FAX (562) 949-3065

a Corrpro company

Certificate No. FM 10694
EN 29001 / ISO 9001 / BS 5750
Approved by BSI

DATE: 9/19/97

TOTAL SHEETS: 3
(INCLUDING COVER SHEET)

TO: Chuck McSmith

ATTN:

FROM: W. J. McDade

CC:

REF: letter

Enclosed is letter you requested. I'll be at POC on Thursday & Friday. I'm not exhibiting but I'll be around the HT Technologies booth on Friday.

I'd like to meet you.

Joe McDade

Corrpro Companies Incorporated
"A Commitment to Excellence"
11841 E. Smith Avenue
Santa Fe Springs, CA 90670
Tel 310/949-0123 • Fax 310/949-3065

September 19, 1997

Mr. Chuck NeSmith
State Water Board
2014 "T" St. Suite 130
Sacramento, CA 95814

Dear Mr. Nesmith:

You have asked me to comment on the general advisability of internally coating underground storage tanks and specifically on the technology of installing internal bladders in place of coating.

First, I should give you some of my background. I started in the corrosion control business in the early 1960s. Throughout the '70s and early '80s I was president of the largest cathodic protection company in the United States, Harco Corporation.

In my opinion internal coating has been and is a very expensive partial solution to the overall corrosion control problem. Virtually every study based on facts (and not coating companies hype) put the major cause of UST corrosion on exterior rather than interior corrosion. In an early study, Dr. Warren Rogers states, "The great majority (approximately 85%) of perforations in steel underground tanks are induced by external corrosion."[1] In a later study by Dr. Rogers, he found 550 out of 50,000 failures due to internal corrosion (1%) of the universe.

In a paper John H. Fitzgerald III P.E. (Past President of the National Association of Corrosion Engineers) quotes from a survey conducted by the American Petroleum Institute (API) "(That) about nine percent of tank leaks reported were the result of internal corrosion."[2] Others, such as a joint UST study done by Suffolk County, New York, and the EPA, found 9 internal tank failures out of a total of 500 tank failures (less than 2%). Other studies show less than 1% failure due to internal corrosion.

My personal experience, over more than 34 years at Harco Corporation and other corrosion control companies confirm that less than 1% of failures are caused by internal corrosion.

Regardless of what report is the true percentage, one can come to no other conclusion than exterior corrosion is the primary causal factor. External cathodic protection is also the least expensive corrosion prevention technology which should encourage compliance by the operators.

As to my opinion on internal bladder technology I am in favor of it over coating for several reasons. The primary benefit is that it enables a double wall tank configuration which is far superior to coating which remains a single containment system. Secondly the bladder system provides the owner with an excellent monitoring system. Furthermore, even if the bladder leaks the product will not spill out into the surrounding environment because of the double tank aspect. It should be pointed out that in order for the tank shell to ensure long-term secondary containment, it must first be certified to be structurally sound and must be retrofitted with external cathodic protection in order to maintain its structural integrity. Additionally the 10 year internal coating reinspection should be waived as there is no need provided the internal bladder with external cathodic protection upgrade option be employed with leak monitoring between bladder and shell.

I believe the EPA and States should work to cooperate with owners to upgrade their UST's with the most cost effective yet environmentally protective upgrade systems.

I hope this helps.

Very truly yours,

Joe McDade

Joe McDade

1. Mean Time to Corrosion Failure, *Warren Rogers Ph.D., Warren Rogers Associates*

2. Don't Let Corrosion Get Your Underground Tanks, *John H. Fitzgerald III PE,. 1st printed in NACE Magazine, April 1988*

D. Petition to Amend Regulations

HT technologies

Control T 0668
Due 8/29/97

August 8, 1997

Mr. Walt Pettit, Executive Director
State Water Resources Control Board
901 "P" Street
Sacramento, CA 95812-0100

AUG 12 1997

Subject: Request to Rescind the Requirement in Section 2664 of Chapter 16 (Underground Storage Tank Regulations) That Single-Walled Steel Underground Storage Tank Upgrades With Bladder Systems Must Have Interior Coating In Addition to a Bladder.

H.T. Technologies is a U.S. and German-based plastic liner manufacturing company which has conducted most of its business in Europe for the past 30 years, but has recently expanded operations into the United States. Included in our line of products are a series of flexible containment systems commonly known as "bladders" for installation into single-walled steel or fiberglass storage tanks as an upgrade to secondary containment.

Our "bladder" systems include U.S. third-party certified components consisting of: 1) a flexible tank similar in size and shape of the storage tank into which it is installed, 2) a layer of fleece material which lies between the outer tank and the flexible tank, and 3) an electronic interstitial monitoring system which monitors potential leaks in the flexible "bladder" and the outer tank via a constant vacuum maintained in the interstitial space between the two tanks. Changes in pressure in the interstitial space, as would be caused by a breach in either tank, triggers an audible and visual alarm indicating that a leak has occurred. This electronic triggering is nearly instantaneous once there has been a sufficient change in vacuum pressure.

The installation of a "bladder" system is one of the allowed methods of upgrading a single-walled underground storage tank in California under the current regulations. The other method is to install a 1/8" thick interior coating of the tank A "bladder" system relies on interstitial monitoring and secondary containment (the original tank) to prevent and or control, fuel leaks into the environment. A coated tank must rely on automatic tank gauging (ATG) or statistical inventory reconciliation (SIR) to monitor for leaks since there is no secondary containment and thus, no interstitial space. Because of the lack of sensitivity of ATG and SIR, they are only required to detect a leak which exceeds .2 gallons per hour This amounts to 1752 gallons per year of undetected fuel spillage directly into the environment and ultimately to groundwater.

Federal underground storage tank upgrade requirements allow for the installation of a "bladder" system by itself. However, in Section 2664 of Chapter 16 of the California underground storage tank upgrade requirements, a 1/8" thick coating is required in addition to the "bladder" system. Thus, in California, a tank owner who wants to do the safer upgrade of secondary containment, must pay nearly double the cost of a tank owner who merely wishes to install a coating and monitor for leaks using inferior methods Since

HT Technologies
5411 Avenida Encinas, Suite 200 • Carlsbad, CA 92008
Ph 1-800-808-9380 • Ph 619-431-8016
Fax 619-431-7659

most tank owners will opt for the cheapest upgrade, i.e. the coating only, this is likely to result in more leaks of blended fuels containing MTBE and TAME into groundwater, than would occur if secondary containment were the preferred upgrade This is contrary to the State Water Board's charge of protecting California's groundwater to the extent possible at the least cost.

We have read the Statement of Reasons (SOR) for the current regulations, and discovered that State Water Board technical staff included the coating requirement for "bladder" systems to control internal corrosion While internal corrosion may be a problem with other monitoring systems, corrosion cannot occur in a constant vacuum, and thus, with our system internal corrosion will not be a problem. Additionally, we would like to see the data which State Water Board staff used to determine that internal corrosion is a problem with "bladder" systems, maybe we can be enlightened!

Since we were not doing business in the U.S at the time the current regulations were being written, we were not able to comment on them, and thus possibly prevent what we believe to be an excessive and unnecessary requirement. Additionally, our interstitial monitoring system has only been recently third-party approved (May 1997). This explains our "last-minute" scramble to have the regulations changed. We currently have several potential customers in California who want to install a bladder, and have the increased benefits of secondary containment over a coated tank; but they do not want to pay the significantly increased cost of installing interior coating in addition to a bladder. They have been asking us why the coating requirement is in the regulations

Our "bladder" systems have been installed in Europe without internal coating for the past 30 years, where secondary containment was required for underground fuel storage tanks long before the U.S. decided to regulate underground tanks Our "bladder" systems have an excellent performance record in Europe in terms of preventing fuel leaks into groundwater. California can benefit from this extensive knowledge and experience by encouraging low-cost upgrades to secondary containment.

We have made the above request to technical staff of the State Water Board and, although they seemed receptive, we feel that they may need support from above to initiate action on this time-important matter

Thank you for taking the time to read this letter and consider our request. If you have any questions, or wish to discuss this matter further, please contact me at 800-808-9380 Representatives of H.T. Technologies would also be happy to meet with you, or with managerial and technical staff of the State Water Board at your convenience.

Sincerely,

Paul Schobert
H T. Technologies

CalEPA

State Water Resources Control Board

Mailing Address:
PO Box 100
Sacramento, CA
95812-0100

901 P Street
Sacramento, CA
95814
(916) 227-4377
FAX (916) 227-4349

www swrcb ca gov

AUG 27 1997

Pete Wilson
Governor

Mr. Paul Schobert
H.T. Technologies
5411 Avenida Encinas, Suite 260
Carlsbad, CA, 92008

Dear Mr. Schobert:

REQUEST TO RESCIND REQUIREMENT IN SUBSECTION 2664(C) OF CHAPTER 16, TITLE 23, CALIFORNIA CODE OF REGULATIONS, THAT UPGRADES OF STEEL UNDERGROUND STORAGE TANKS WITH BLADDER SYSTEMS MUST ALSO INCLUDE INTERIOR LINING.

We have received your letter dated August 8, 1997 in which you request the State Water Resources Control Board to consider rescinding the liner requirement for underground fuel tank upgrades with bladder systems. I have been informed that technical staff of the Division of Clean Water Programs have previously met with you at the recently held UST upgrade workshops to discuss the subject request. Additionally, I understand that a staff member has been assigned to study this issue and make a recommendation as to the merits of your request by September 30, 1997.

We will inform you in writing of our decision regarding this issue. The response will include a technical justification for the decision based on information submitted by your company, local implementing agencies in California who have had experience with bladder systems, and the in-house historical data used to support the 1994 underground storage tank regulations.

If you have any questions concerning this matter please contact Charles NeSmith of the Division of Clean Water Programs at (916) 227-4377.

Sincerely,

Walt Pettit
Executive Director
a:\t0668

Check -

Cal/EPA

OCT 2 1997

Pete Wilson
Governor

State Water Resources Control Board

Division of Clean Water Programs

Mailing Address
PO Box 944212
Sacramento, CA
94244-2120

2014 T Street,
Suite 130
Sacramento, CA
95814
(916) 227-4377
FAX (916) 227-4349

www swrcb ca gov

Mr. Paul Schobert
H.T. Technologies
5411 Avenida Encinas, Suite 260
Carlsbad CA 92008

Dear Mr. Schobert:

REQUEST TO RESCIND REQUIREMENT IN SUBSECTION 2664(C) OF CHAPTER 16 (UNDERGROUND STORAGE TANK REGULATIONS) THAT UPGRADES OF STEEL UNDERGROUND STORAGE TANKS WITH BLADDER SYSTEMS MUST ALSO INCLUDE INTERIOR COATING OF THE HOST TANK

The Division of Clean Water Programs has completed its study with respect to your August 8, 1997 request that the State Water Resources Control Board (SWRCB) rescind the requirement that installations of bladder systems in California include interior coating of the host steel tank. Based on the new information submitted by H.T. Technologies, comments from local implementing agencies and the U.S. EPA, and in-house information we have decided to proceed with a proposed regulatory change to delete the statewide requirement for interior coating of a steel host tank in a bladder system.

We are currently preparing a rule-making package to be promulgated under California's emergency regulation procedures. Although this process is significantly faster than routine regulation changes, the earliest date by which the new regulation could take effect would be in January 1998, after a hearing and subsequent adoption by the SWRCB. This assumes no significant opposition to the proposal is raised. Additionally, the Office of Administrative Law may determine that the proposed changes do not qualify as emergency regulations and thus we would then have to proceed via normal procedures. In such case, we estimate it would take about a year before the regulation change would take effect, notwithstanding any opposition to the measure.

If you have any questions concerning this matter please contact Charles NeSmith at (916) 227-4377.

Sincerely,

ORIGINAL SIGNED BY

Harry M. Schueller, Chief
Division of Clean Water Programs

cc: Hersch Caudill, H. T. Technologies

bcc: Walt Pettit

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3. State Water Resources Control Board (SWRCB) Action

STATE WATER RESOURCES CONTROL BOARD MEETING AGENDA

Thursday, April 16, 1998 – 9:00 a.m.
First-Floor Hearing Room
Paul R. Bonderson Building
901 P Street, Sacramento

Questions regarding this agenda - call Maureen Marché (916) 657-0990 or fax 657-0932. This notice and associated staff reports can be accessed electronically through our Internet address: http://www.swrcb.ca.gov. (Note: agenda items should be available electronically on April 8, 1998.)

Please note time limitations on presentations may be imposed. The State Board requests that oral testimony be summarized. Submittal of written comments is encouraged to ensure that all comments will be included in the record before the Board.*

Declaration of Quorum

PUBLIC FORUM

Public Forum. (Any member of the public may address and ask questions of the Board relating to any matter within the Board's jurisdiction, provided the matter is not on the Board's agenda, or pending before the Board or a Regional Board.)

UNCONTESTED ITEMS

1-7. The Board will be asked to approve Items 1-7 at one time. (See below for description of items.)

CLEAN WATER PROGRAMS

8. **Consideration of a Request from Lahontan Regional Water Quality Control Board to Set Aside Small Community Grant Funds for Class A Projects.** (The Board will consider whether to adopt the proposed resolution denying the request.)

WATER QUALITY PETITION

9. **In the Matter of the Petition From Ventura County Citizens to Stop Toland Landfill for Review of Waste Discharge Requirements Order 96-033 Issued by the California Regional Water Quality Control Board, Los Angeles Region. SWRCB/OCC File A-1067.** (The Board will consider whether to adopt one of the proposed orders. Please note: The Board will not consider any additional comments on this item.)

Closed Session Item

(Please note Closed Sessions are not open to the public)

WATER RIGHTS – The Board will be meeting in closed session to discuss evidence taken at a hearing. This is authorized under Government Code Section 11126(c)(3). This item will be scheduled for a future meeting. Interested parties will be notified of the exact time, date and location.

10. **Proposed Order Related to the Stream and Waterfowl Habitat Restoration Plans and Grant Lake Operations and Management Plan Submitted Pursuant to the Requirements of the SWRCB's Mono Lake Decision Which Modified Water Right Licenses 10191 and 10192 of the Los Angeles Department of Water and Power.** (Note: Closed Session items are not available until noticed for a public meeting.)

–over–

****

UNCONTESTED ITEMS CALENDAR

Uncontested items are expected to be routine and non-controversial. They will be acted upon by the Board, at one time, without discussion. If any Board Member, staff, or interested person requests that an item be removed from the Uncontested Items Calendar, it will be taken up in the regular agenda order.

CLEAN WATER PROGRAMS

1. **Consideration of Decommitment of State Revolving Fund (SRF) for the Construction of Islais Creek Facilities, Contracts "4", "5", "B" and "E".** (The Board will consider whether to adopt the proposed resolution to decommit the SRF for the Islais Creek Facilities.)

2. **Consideration of Proposed Resolution Amending the Underground Storage Tank (UST) Cleanup Fund Priority List Amendment No. 51.** (The Board will consider whether to adopt the proposed resolution amending the priority list.)

3. **Consideration of Authorization to Accept the Leaking Underground Storage Tank Federal Grants.** (The Board will consider whether to adopt the proposed resolution to accept the Federal Leaking Underground Storage Tank Cleanup Portion of the UST Program.)

4. **Consideration of Authorization to Accept the Underground Storage Tank Federal Grants.** (The Board will consider whether to adopt the proposed resolution to accept the Federal Underground Storage Tank Preventative Portion of the UST Program.)

5 **Consideration of Final Certification of Emergency Amendments to the Definition of Motor Vehicle Fuel Tank to Include all Underground Storage Tanks Containing Petroleum Products.** (The Board will consider whether to adopt the proposed resolution approving final certification to the emergency amendments defining a motor vehicle fuel tank.)

6. **Consideration of Final Certification of Emergency Amendments to Repeal the Regulatory Requirement to Line the Interior of an Underground Storage Tank (UST) Before Installing a Bladder to Meet the 1998 Upgrade Requirements (see Sections 2662 and 2664 of the California Code of Regulations).** (The Board will consider whether to adopt the proposed resolution approving final certification to the emergency amendments repealing the requirement in pre-line UST before installing a bladder system.)

WATER RIGHTS

7. **Consideration of a Proposed Resolution Authorizing an Extension of Time and Increase in Funding for the Interagency Agreement Between the Department of Water Resources and the State Water Resources Control Board for Staff Services to Assist in the Completion of the Environmental Impact Report for Implementation of the 1995 Bay/Delta Water Quality Control Plan.** (The Board will consider whether to approve the proposed resolution.)

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* In order to be fully considered at the Board meeting, all written comments for items 1-8 must be received by 5:00 p.m., Tuesday, April 14, 1998. Mailing address: PO Box 100, Sacramento, CA 95812-0100, FAX 916-657-0932.

STATE WATER RESOURCES CONTROL BOARD MEETING
SACRAMENTO, CALIFORNIA
April 16, 1998

ITEM: 5

SUBJECT: DEFINITION OF MOTOR VEHICLE FUEL TANK -- FINAL CERTIFICATION OF EMERGENCY RULEMAKING AMENDMENTS TO TITLE 23, DIVISION 3, CHAPTER 16, SECTION 2611, CALIFORNIA CODE OF REGULATIONS (CCR), UNDERGROUND STORAGE TANK (UST) REGULATIONS RELATING TO THE DEFINITION OF MOTOR VEHICLE FUEL (MVF) TANKS.

DISCUSSION: The State Water Resources Control Board (SWRCB) is being asked to consider final certification of the emergency amendments to Section 2611 of Chapter 16 which became effective December 26, 1997 and will expire on April 26, 1998 unless the proposed amendments are adopted for final certification. This change in the underground storage tank regulations will modify the definition of MVF tanks to include all USTs containing liquid petroleum products without regard to the end use of the product

The SWRCB adopted the proposed amendments as emergency regulations at its November 18, 1997 meeting A notice of proposed rulemaking regarding the proposed amendments was published in the February 20, 1998 California Regulatory Notice Register. February 20, 1998 was the beginning of the 45-day public comment period which will end on April 6, 1998. Any adverse comments (up to March 31) regarding the proposed regulatory action will be summarized and discussed at the April 1, 1998 workshop Any additional adverse comments received between March 31 and April 6, 1998 will be summarized and discussed at the April 16, 1998 meeting

By December 22, 1998, USTs must meet improved construction standards MVF tank owners may either replace or upgrade their existing tanks - the method of complying is up to the tank owner. However, owners of non-MVF tanks must install new, double-walled tanks because of the greater threat to the beneficial uses of groundwater from leaks and spills

Article 1, Section 2611 CCR, defines a MVF tank as one that "contains a petroleum product which is intended to be used primarily to fuel motor vehicles or engines." By specifying motor vehicles and

engines, other uses for the petroleum are excluded from the definition unnecessarily. For example, the exclusion from the definition has a direct effect on hospitals with USTs used for fueling boilers to heat water. Hospitals, like all other owners of USTs, must meet the December 22, 1998 deadline. Because the tanks are not MVF tanks as defined, they must be replaced rather than retrofitted (Section 2662 CCR). Replacing is more time consuming and expensive. It is unnecessary to require replacement of petroleum USTs used to fuel boilers because they pose no greater environmental risk than those petroleum USTs used for other purposes.

By amending Section 2611 CCR, USTs storing any petroleum product will be regulated uniformly without consideration for the use of the product in the UST. The amendment will not affect local UST programs. It may have an impact on decision making by California's hospital administrators regarding compliance with the deadline.

The amended definition will also specify that used oil tanks are not included in the definition of MVF tanks. Used oil tanks are regulated under the more stringent requirements of other hazardous substance tanks. The specific exclusion in the amended regulation is stated only to eliminate confusion within the regulated community.

POLICY ISSUE	Should the SWRCB adopt final certification of the emergency amendments to Section 2611 of Title 23, Division 3, Chapter 16, CCR as proposed?
FISCAL IMPACT	none
REGIONAL BOARD IMPACT	none
STAFF RECOMMEN-DATION	Adopt final certification of the emergency amendments to Section 2661 CCR to include all petroleum USTs in the definition of MVF tank and to specifically exclude used oil tanks from the definition

Policy Review _____
Legal Review _____
Fiscal Review _____

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 98 - 033

FINAL CERTIFICATION OF EMERGENCY RULEMAKING TO AMEND
THE DEFINITION OF
MOTOR VEHICLE FUEL TANKS

WHEREAS:

1. Section 25299.3 of Chapter 6.7, Health and Safety Code (H&SC) authorizes the SWRCB to adopt regulations to implement the provisions of Chapter 6.7 relating to underground storage tanks.

2. Section 2611 CCR defines a motor vehicle fuel (MVF) tank as, ". . . an underground storage tank that contains a petroleum product which is intended to be used primarily to fuel motor vehicles or engines."

3. Those petroleum USTs used for purposes other than fueling engines currently fall under the category of "other hazardous substance" tanks and have more stringent requirements for meeting improved construction standards by December 22, 1998 (Section 2662 CCR).

4. Amending the definition of MVF tank will allow all USTs containing petroleum products to be regulated uniformly.

5. Used oil tanks should continue to be regulated under the more stringent requirements of other hazardous substance tanks.

6. Specifiying that used oil tanks are not motor vehicle fuel tanks will eliminate confusion within the regulated community.

7. The SWRCB adopted the proposed amendments as emergency regulations at its November 18, 1997 meeting, and these emergency regulations became effective on December 26, 1997. Unless final certification of the emergency regulations is adopted, the amendments will expire on April 26, 1998.

THEREFORE BE IT RESOLVED THAT:

The State Water Resources Control Board adopts final certification of the emergency amendments to Section 2611, Chapter 16, Title 23 of the California Code of Regulations. The text of Section 2611 is amended as follows: "Motor vehicle fuel tank" means an underground

storage tank that contains a petroleum product ~~which is intended to be used primarily to fuel motor vehicles or engines~~. The definition does not include underground storage tanks that contain used oil.

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on April 16, 1998.

Maureen Marché
Administrative Assistant to the Board

STATE WATER RESOURCES CONTROL BOARD MEETING
SACRAMENTO, CALIFORNIA
April 16, 1998

ITEM: 6

SUBJECT: UPGRADING UNDERGROUND STORAGE TANKS -- FINAL CERTIFICATION OF EMERGENCY RULEMAKING AMENDMENTS TO TITLE 23, DIVISION 3, CHAPTER 16, SECTION 2662 AND 2664, CALIFORNIA CODE OF REGULATIONS (CCR), UNDERGROUND STORAGE TANK (UST) REGULATIONS RELATING TO THE USE OF BLADDERS TO UPGRADE USTS BY THE DECEMBER 22, 1998 DEADLINE.

DISCUSSION: The State Water Resources Control Board (SWRCB) is being asked to consider final certification of the emergency amendments to Sections 2662 and 2664 of Chapter 16 which became effective on December 26, 1997, and will expire on April 26, 1998 unless the proposed amendments are adopted for final certification. The SWRCB adopted the proposed amendments as emergency regulations at its November 18, 1997 meeting. A notice of proposed rulemaking regarding the proposed amendments was published in the February 20, 1998 California Regulatory Notice Register. February 20, 1998 was the beginning of the 45-day public comment period which will end on April 6, 1998. Any adverse comments (up to March 31) regarding the proposed regulatory action will be summarized and discussed at the April 1, 1998 workshop. Any additional adverse comments received between March 31 and April 6, 1998 will be summarized and discussed at the April 16, 1998 meeting.

In order to ensure their tanks meet standards which go into effect on December 22, 1998, owners of petroleum tanks may choose to either upgrade or replace their tanks. Section 2662(c) CCR authorizes tank owners to upgrade by having a lining sprayed onto the interior surface of their tanks to reinforce the tank walls and to protect against interior corrosion. This section also authorizes the installation of a bladder inside the tank as an upgrade option, however, Section 2664 requires the tank to be lined before installation of the bladder.

Bladder manufacturers believe the requirement to pre-line the tank is superfluous, adding unnecessary expense to the upgrade process and discouraging tank owners from using this technology without providing a benefit in return. They point out that bladder systems provide internal corrosion prevention measures and the monitoring method used for these

systems provides superior protection against releases than a single-walled tank.

Available information from the U.S. Environmental Protection Agency and corrosion engineers, as well as information from the industry, supports the conclusion that pre-lining a tank is not necessary if the following provisions are included: the tank must have external cathodic protection, the tank walls must be free of thin areas or flaws, and the tank's interior surface must be smooth to ensure that the bladder is not likely to be punctured.

POLICY ISSUE:	Should the SWRCB adopt final certification of the emergency amendments to Sections 2662, and 2664 of Title 23, Division 3, Chapter 16, CCR as proposed?
FISCAL IMPACT:	none
REGIONAL BOARD IMPACT:	none
STAFF RECOMMEN-DATION	Adopt final certification of the emergency amendments to Sections 2662(c) and 2664(b) CCR to eliminate the requirement for lining a tank before installing a bladder system and to require that bladder systems have the protections listed above.

Policy Review
Legal Review
Fiscal Review

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 98 - 034

FINAL CERTIFICATION OF EMERGENCY RULEMAKING TO AMEND
THE REQUIREMENTS FOR UPGRADING
UNDERGROUND STORAGE TANKS

WHEREAS:

1. Section 25299.3 of Chapter 6.7, Health and Safety Code (H&SC) authorizes the SWRCB to adopt regulations to implement the provisions of Chapter 6.7 relating to underground storage tanks (USTs).

2. Section 25292(d) H&SC requires that by December 22, 1998, all USTs installed before January 1, 1984 be upgraded or replaced to prevent releases due to corrosion or spills and overfills.

3. Sections 2662(c) California Code of Regulations (CCR) authorizes tank owners to use either interior lining or interior lining and bladders to upgrade their USTs. Section 2664(c) requires lining USTs before installing bladders.

4. Available information supports the conclusion that bladders alone, without interior lining, provide sufficient protection against releases and that the benefit from adding interior lining is not sufficient to warrant the requirement.

5. Requiring pre-lining of a UST discourages tank owners from installing bladders when, in fact, bladder systems are at least as protective of the environment as lined systems.

6. The SWRCB adopted the proposed amendments as emergency regulations at its November 18, 1997 meeting (non-substantial changes have been made since that meeting), and these emergency regulations became effective on December 26, 1997. Unless final certification of the emergency regulations is adopted, the amendments will expire on April 26, 1998.

THEREFORE BE IT RESOLVED THAT:

The State Water Resources Control Board adopts final certification of the emergency amendments to Sections 2662 and 2664 of Chapter 16, Title 23 of the California Code of Regulations. Specifically, Sections 2662 and 2664 shall read as follows:

§ 2662. Requirements for Upgrading Underground Storage Tanks

(c)(2). Bladder system, ~~interior lining,~~ and cathodic protection -

~~(A)~~ Bladder systems shall be installed in accordance with the requirements of section 2664.

~~(B). When upgrading a fiberglass or clad tank with a bladder system, interior lining and cathodic protection are not required if a special inspector and the local agency determine they are not necessary.~~

Authority: Health and Safety 25299.3, 25299.7
Reference: Health and Safety 25291 and 25296 and 40 CFR 280.1

§ 2664. Requirements for Using Bladder Systems

(b) Materials used in the bladder system and in the installation process shall be approved by an independent testing organization based on voluntary consensus standards, an industry code, or engineering standard for the applicable use of the bladder system. Evidence of this approval shall be provided to the local agency before the local agency authorizes the installation. The following conditions shall be met:

(1) The bladder system shall be installed under the direct supervision of a representative of the bladder system fabricator or a contractor certified by the fabricator.

(2) The entire interstitial space between the tank and the bladder shall be monitored in accordance with subsection 2632(c)(2).

(3) Materials used in the bladder system shall be product-tight and compatible with the substance stored.

(4) The bladder system shall include an internal striker plate (wear plate) which meets the requirements of section 2631(c).

(5) If the underground storage tank is constructed of steel, cathodic protection shall be installed in accordance with section 2635(a)(2)(A) and, before installing a bladder system, a special inspector shall certify that the underground storage tank has sufficient structural integrity to seal the interstitial space between the bladder and the underground storage tank and provide secondary containment. The special inspector shall make this certification by entering and inspecting the entire interior surface of the tank and shall base this certification upon the set of procedures and criteria specified in 2663(b)(2), except that abrasive blasting is only required to the extent deemed necessary by manufacturers specifications, or the special inspector, to assess the structural integrity of the underground storage tank.

(6) The bladder installer shall certify in writing to the local agency that sufficient measures have been taken to minimize or eliminate the potential for the underground storage tank or interstitial monitoring system components to puncture the bladder.

(7) Before installing a bladder, thin areas or other flaws in the underground storage tank walls that need additional reinforcing shall be reinforced in accordance with section 2661(d).

(8) If required by manufacturers' specifications or the special inspector, the underground storage tank shall be lined in accordance with section 2663 prior to installation of the bladder except only to the thickness deemed necessary by the more stringent requirement of the manufacturers' specifications or the special inspector.

~~(e). Before installing a bladder system in a steel tank, the tank interior shall be lined in accordance with section 2663 and shall be provided with cathodic protection as required by section 2635(a)(2)(A). The periodic inspection specified in subsection 2663(h) is not required unless the bladder system is removed for repairs or replacement. Unless the local agency determines otherwise, the limiting criteria specified in section 2663(b)(2)(B)(i) through (iv) do not apply if the lining is 250 mil fiberglass reinforced plastic or equivalent.~~

Authority: Health and Safety Code 25299.3, 25299.7
Reference: Health and Safety Code 25292, 25292.1, 40 CFR 280.21, 280.32(d), 281.33

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on April 16, 1998.

Maureen Marché
Administrative Assistant to the Board

A. Resolutions Adopting Amended Regulations

B. Tape Transcript of SWRCB Hearing (inside cover)

4. Final Rulemaking Documents

A. Certification Statement - April 16, 1998 (pursuant to Gov. Code 11346.1 subdivision (e))

CERTIFICATION STATEMENT
(Pursuant to Government Code Section 11346.1 subdivision (e))

The State Water Resources Control Board complied with all of the provisions of Government Code Section 11346.1 subdivision (e), prior to, or during, the 120-day emergency regulation period for the proposed amendments which occurred from December 26, 1997 to April 26, 1998.

Dated: April 16, 1998

By: 

Associate Engineering Geologist

B. Final Statement of Reasons

FINAL STATEMENT OF REASONS

1998 AMENDMENTS TO CALIFORNIA UNDERGROUND STORAGE TANK REGULATIONS SECTIONS 2611, 2662, AND 2664

The only comments received by the SWRCB during the designated comment period were from a representative of the Fiberglass Tank and Pipe institute in Houston, Texas. Two basic issues were raised: 1) the permeability of PVC bladders with respect to the volatile components of gasoline, including MTBE; and 2) potential internal corrosion of a steel host tank (no comments were received regarding the proposed definition of "motor vehicle fuel").

The commenter stated that the volatile components of gasoline (especially MTBE) will pass through a PVC bladder and into the interstitial space between the host tank and the bladder, and then be exhausted into the atmosphere occupied by the public and employees via the vacuum interstitial monitoring system. These comments, however, are irrelevant to the question of whether on not to rescind the mandatory interior lining requirement for bladder systems since interior lining has no affect on the permeability of bladders or the interstitial monitoring system. All primary underground storage tanks, including bladder systems, must be product tight and compatible with the substance stored, and third party certified that these requirements have been met. In the case of bladder system, this requirement is regardless of whether or not the interior of the host tank is lined.

The commenter also claimed that there is no evidence that a tank bladder will prevent interior corrosion from occurring.. Nearly all of the bladder systems we are aware of use vacuum interstitial monitoring which nearly eliminates air and moisture from collecting in the interstitial space, thus making the potential for internal corrosion negligible.

We concur that some internal corrosion may occur in bladder system that does not use a vacuum interstitial monitoring system. However, the decision to rescind the mandatory interior lining requirement for bladder systems was not based on the premise that no internal corrosion will occur in the steel host tank. Rather, this was a "risk-based" decision which considered the overall performance of bladder systems (without interior lining) with respect to the other upgrade option allowed in California, i.e. interior lining with cathodic protection. This option remains a single-walled system that must be monitored by volumetric methods via an automatic tank gauge or statistical inventory reconciliation since there is no interstitial space.

In comparing this upgrade option with the proposed option of a double-walled bladder system without interior lining we concluded that the proposed option would be **at least** as protective of the environment as the single-walled system. This conclusion was based primarily on the secondary containment and interstitial monitoring features provided by bladder systems. The mandatory interior lining requirement unnecessarily discourages the installation of bladder systems and thus encourages single-walled upgrades.

We determined that the mandatory interior lining requirement was unnecessary to control internal corrosion (as well as being inconsistent with Federal and State requirements) based on:

1. Evidence cited by the EPA in the pre-amble to the 1988 Federal ruling which indicated that internal corrosion accounted for only about 10% or less of underground tank failures. Additionally, the EPA determined that these internal corrosion failures occurred at the bottom of the fill-pipe opening and often could have been prevented if striker plates had been used (now required on all upgrades in California).

2. Given the above, the EPA decided not to mandate interior lining of new steel underground storage tanks. California does not require interior lining of new steel underground tanks either.

3. The environment within the interstitial space of a bladder and a steel host tank is far less conducive to corrosion than the environment in the primary tank which is readily exposed to fuel, air and moisture. This is especially the case where a vacuum is drawn within the interstitial space.

Clearly the decision to rescind the mandatory requirement in California for interior lining prior to installation of bladder systems is: 1) consistent with risk-based logic, i.e. secondary containment and interstitial monitoring provide at least as much protection to the environment as single-walled (lined) systems; 2) consistent with EPA's determination that interior corrosion is not a significant factor in underground tank failures; 3) consistent with EPA's and California's decision not to require interior lining of new steel underground storage tanks; and 4) consistent with the fact that significant interior corrosion is far less likely to occur within the interstitial space of a bladder system than in the primary steel tanks which were the subject of EPA's determination regarding internal corrosion.

Given the above discussion, which complies with Government Code Section 11346.9 subdivisions (a)(1) and (a)(3), we do not find any reason to modify or withdraw the proposed amendments based on the submitted comments.

Pursuant to Government Code Section 11346.9 subdivision (a)(4), the SWRCB has determined that no alternative to the adopted amendments would be more effective in carrying out the stated purpose of the adopted amendments, or would be as effective and less burdensome to affected private persons than the adopted regulations. This is because the purpose of the adopted regulations is simply to provide tank owners with increased cost-effective and environmentally protective options in meeting the December 22, 1998 underground storage tank upgrade deadline. Additionally, no private persons are adversely affected by the adopted regulations.

Pursuant to Government Code Section 11346.9 subdivision (a)(5), the SWRCB has not rejected any proposed alternatives that would lessen the adverse economic impact on small

businesses of the adopted regulations since no alternatives were proposed. Additionally, the adopted regulations do not have an adverse economic impact on small businesses.

Pursuant to Government Code Section 11346.9 subdivision (a)(5)(b), the "updated" informative digest is the same as the original informative digest since the adopted amendments are the same as the proposed amendments, and no information was added to the rulemaking record between the effective date of the related emergency regulations (December 26, 1997) and closure of the rulemaking file on April 16, 1998.

Pursuant to Government Code Section 11346.9 subdivision (a)(2), the SWRCB has determined that the proposed amendments would not impose a mandate on local agencies or school districts nor are there any costs for which reimbursement is required by Part 7 (commencing with Section 17500) of Division 4 of the Government Code, nor will the proposed amendments impose any non-discretionary costs or savings on local agencies, or result in any cost-impact on private persons or businesses.

For reference, the Informative Digest and the Initial Statement of Reasons are repeated below.

INFORMATIVE DIGEST

1998 AMENDMENTS TO CALIFORNIA UNDERGROUND STORAGE TANK REGULATIONS SECTIONS 2611, 2662, AND 2664

The State Water Resources Control Board is proposing two changes in its Underground Storage Tank (UST) Regulations aimed at 1) making state UST rules more consistent with federal rules (40 CFR 280) and 2) increasing options available to tank owners for complying with a state and federally mandated deadline for upgrading their USTs. The upgrade deadline, December 22, 1998, is specified in federal rules at 40 CFR 280.21. State law and rules specify the same upgrade deadline. [Health and Safety Code Section 25292 and Title 23, Division 3, Chapter 16, Section 2662, California Code of Regulations (CCR)]. Under current state rules, the owner must either replace his UST system with a new system meeting current double containment and corrosion protection standards [Section 2662(b)] or optionally, if and only if it is a motor vehicle fuel (MVF) tank, upgrade it by adding cathodic protection and interior epoxy lining, overfill and spill prevention equipment and other appurtenances or by adding cathodic protection, epoxy lining and an interior flexible bladder, overfill and spill prevention equipment and other appurtenances [Section 2662(c].

1. Change in definition of Motor Vehicle Fuel Tank (Section 2611)

   Current upgrade rules divide regulated UST facilities into two categories – those storing motor vehicle fuel and those storing other hazardous substances (Section 2662). If the tank is a MVF tank, it may be upgraded or replaced. However, if it is a non-MVF tank, it must be excavated and replaced with a new system, which is more costly, time consuming, and invasive to the operation of the business.

Note: Section 2662 does not state that non-MVF tanks must be replaced; it states that non-MVF tanks must be "retrofitted with secondary containment." However, this is neither economically feasible, nor an accepted industry practice. Therefore, in order to provide secondary containment required by Section 2662, the only choice is to replace the non-MVF tank with a new double-wall system.

Non-MVF tanks must meet stricter construction and monitoring standards (replacement rather than retrofitting) because they generally contain products that are more hazardous to the public health and the environment.

Federal UST rules similarly establish two upgrade standards based upon whether the tank stores "petroleum" or other "hazardous substance" (see definitions at 40 CFR 280.12). The federal upgrade option [40 CFR 280.21], while less stringent than the state upgrade rules (i.e., it requires interior lining or cathodic protection and doesn't address bladders), nevertheless applies to a broader category of substances. All tanks storing petroleum products may be upgraded. Petroleum includes motor fuels, jet fuels, distillate fuel oils, lubricants, petroleum solvents and used oils. Federal "hazardous substance" USTs (like state regulated non-MVF tanks) must be replaced with secondary containment (40 CFR 280.42).

The state definition of MVF tank is unnecessarily narrow and limits options available to owners of California's underground storage tank (UST) systems for meeting upgrade requirements. Existing regulations define a MVF tank as one ". . .that contains a petroleum product which is intended to be used primarily to fuel motor vehicles or engines."

This means that if a steel tank containing a given petroleum product - *e.g. diesel* - is used to fuel an emergency generator (engine) at a hospital, the tank is a MVF tank and may be upgraded. However, if the same tank is used to heat the hospital's water supply, the tank would not meet the definition and would have to be replaced at considerable added cost, facility down-time and construction impact.

The proposal would expand the definition of MVF to match the federal petroleum definition, with the exception of "used oil". In California, used oil is defined as a hazardous waste, which included in the class of "other hazardous substance", [Health and Safety Code Section 25250.1(a)(1)] and should, therefore, not be covered by the MVF definition. The expanded definition would allow tanks storing heating oil, fresh lubricating oil and other petroleum products, which pose an equal or lower risk to the environment as gasoline (a MVF), to be upgraded instead of having to be replaced.

2. Delete Requirement for Mandatory Interior Lining on Bladder Upgrades (Sections 2662 & 2664)

Under existing regulations, tank owners who choose to upgrade their steel USTs must add an epoxy lining to the inside of the tank and fit the tank with cathodic protection.

They also have the option, but are not required to, install a bladder system inside the tank, but only after interior lining has been installed. In a 1994 rulemaking which implemented the standards for upgrading tanks in section 2664, the requirement to combine lining with bladder installation was made because of the concern that internal corrosion might threaten the structural integrity of the steel tank.

Bladders are flexible polyvinyl-chloride (PVC) containers similar to the shape and size of a tank. They are installed within the UST to provide primary containment of stored petroleum while the existing UST, or host tank, provides the secondary containment. The space between the existing tank and the bladder is monitored by maintaining a continuous vacuum. If the vacuum pressure changes, an audible and visual alarm is triggered.

A representative from a bladder manufacturing company has requested in writing the recission of the lining requirement as a condition to bladder installation, declaring that the continuous vacuum would prevent significant internal corrosion. The representative stated that the benefit of the secondary containment and monitoring provided by bladder systems is a safety feature not provided by interior-lined steel tanks. Owners are discouraged from installing bladders because of the considerable cost of adding the lining (for a typical 10,000 gallon tank, the added cost of the lining would be approximately $5,000).

Based on information in the rulemaking record, the SWRCB has determined that interior lining is not necessary for all bladder installations in order to protect against internal corrosion. Additionally the SWRCB has determined that, due to the secondary containment and interstitial monitoring features of bladder systems, the level of protection provided by bladder systems is at least as high as that provided by lining only.

The federal rules are silent on the use of bladders. To use a bladder system in a tank upgraded under the federal rules then, one would only have to add interior lining or cathodic protection, but not both. The current California rules do require both, and the proposal, by eliminating the internal lining requirement, would cause California rules to become more consistent with federal rules.

The effects of the proposed amendments will be:

1. The expansion of the definition of a MVF tank will allow approximately the same class of tanks under the state and federal rules to be eligible for the less costly upgrade options. The notable exception would be used oil. Additionally, the expanded definition of MVF tank means more tanks storing petroleum can be upgraded instead of being replaced.

2. The recission of the interior lining requirement for bladder installations will allow tank owners to install bladders with cathodic protection only, making the state and federal requirements for tanks with bladders essentially the same, even though the federal rules are silent on bladders.

3. Finally, and most importantly, tank owners will have more options for meeting the upgrade requirements. Increased options means lower costs, increased availability of suppliers and contractors, less impact to business operations (a bladder installation can be completed in two days vs. two weeks or more for a new installation), and overall higher compliance. Higher compliance means fewer leaking tanks impacting groundwater. Upgrading is typically in the range of $20,000 per tank vs. $50,000 - $80,000 for a new tank. Bladders become a more cost effective option because the interior lining (typical cost - $5,000) has been deleted. Rescinding the requirement to line a tank before installing a bladder in section 2664(b) will remove an unnecessary, cost prohibitive step in the upgrading process with no compromise of the protection of the public health and the environment. While the proposed amendments would eliminate the blanket requirement to line all bladder installations, a provision is included in section 2664(b)(5) which does require interior lining where it is recommended by either manufacturers' specifications or the special inspector who evaluates the structural integrity of the tank.

Without these changes, owners who might otherwise decide to go out of business and walk away from their tanks because they cannot meet replacement costs may find they are able to upgrade their systems by complying with the proposed regulations. Abandoned tanks may contain product which could leak, causing public health and environmental problems. Abandoned tanks also become the responsibility of the state to remove and clean up

INITIAL STATEMENT OF REASONS

SECTION 2611: DEFINITION OF "MOTOR VEHICLE FUEL TANK"

The state definition of MVF tank is unnecessarily narrow and limits options available to owners of California's underground storage tank (UST) systems for meeting upgrade requirements. Existing regulations define a MVF tank as one ". . .that contains a petroleum product which is intended to be used primarily to fuel motor vehicles or engines."

This means that if a steel tank containing a given petroleum product - *e.g. diesel* - is used to fuel an emergency generator (engine) at a hospital, the tank is a MVF tank and may be upgraded. However, if the same tank is used to heat the hospital's water supply, the tank would not meet the definition and would have to be replaced at considerable added cost, facility down-time and construction impact.

The proposal would expand the definition of MVF to match the federal petroleum definition, with the exception of "used oil". In California, used oil is defined as a hazardous waste, which included in the class of "other hazardous substance", [Health and Safety Code Section 25250.1(a)(1)] and should, therefore, not be covered by the MVF definition. The expanded definition would allow tanks storing heating oil, fresh lubricating oil and other petroleum

products, which pose an equal or lower risk to the environment as gasoline (a MVF), to be upgraded instead of having to be replaced.

SECTIONS 2662 AND 2664: BLADDER SYSTEMS

Under existing regulations, tank owners who choose to upgrade their steel USTs must add an epoxy lining to the inside of the tank and fit the tank with cathodic protection. They also have the option, but are not required to, install a bladder system inside the tank, but only after interior lining has been installed. In a 1994 rulemaking which implemented the standards for upgrading tanks in section 2664, the requirement to combine lining with bladder installation was made because of the concern that internal corrosion might threaten the structural integrity of the steel tank.

Bladders are flexible polyvinyl-chloride (PVC) containers similar to the shape and size of a tank. They are installed within the UST to provide primary containment of stored petroleum while the existing UST, or host tank, provides the secondary containment. The space between the existing tank and the bladder is monitored by maintaining a continuous vacuum. If the vacuum pressure changes, an audible and visual alarm is triggered.

A representative from a bladder manufacturing company has requested in writing the recission of the lining requirement as a condition to bladder installation, declaring that the continuous vacuum would prevent significant internal corrosion (Paul Schobert, H.T. Tecnologies, August 8, 1997). The representative stated that the benefit of the secondary containment and monitoring provided by bladder systems is a safety feature not provided by interior-lined steel tanks. Owners are discouraged from installing bladders because of the considerable cost of adding the lining (for a typical 10,000 gallon tank, the added cost of the lining would be approximately $5,000)

Based on information in the rulemaking record, including information from the U.S. EPA (pre-amble to the Federal Regulations) and a report prepared by a member of the National Association of Corrosion Engineers ("Corrosion Control, UST Flexible Fitted Tank", Joseph Lehmann, July 26, 1997), the SWRCB has determined that interior lining is not necessary for all bladder installations in order to protect against internal corrosion. Additionally the SWRCB has determined that, due to the secondary containment and interstitial monitoring features of bladder systems, the level of protection provided by bladder systems is at least as high as that provided by lining only.

The federal rules are silent on the use of bladders. To use a bladder system in a tank upgraded under the federal rules then, one would only have to add interior lining <u>or</u> cathodic protection, but not both. The current California rules do require both, and the proposal, by eliminating the internal lining requirement, would cause California rules to become more consistent with federal rules.

C. Fiscal Impact Statement

FISCAL IMPACT STATEMENT

The SWRCB has detemined that the proposed amendments to California Code of Regulations, Title 23, Division 3, Chapter 16, Underground Storage Tank Regulations do not:

1. **Significantly affect the creation or elimination of jobs within the State of California.**

2. **Significantly affect the creation of new businesses or the elimination of existing businesses within the State of California.**

3. **Significantly affect the expansion of business currently doing business within the State of California.**

4. **Significantly affect the cost of housing within the State of California.**

The SWRCB has also determined that the proposed action will not have a significant adverse economic impact on businesses, including the ability of California businesses to compete with businesses in other states. Additionally, the proposed amendments will not have an affect on small businesses. This is because the main effect of the proposed amendments is to simply provide tank owners with increased options in meeting the December 22, 1998 underground storage tank upgrade deadline.

ESTIMATE OF COSTS OR SAVINGS

The SWRCB has determined that the proposed amendments to the California Code of Regulations, Title 23, Division 3, Chapter 16, Underground Storage Tank Regulations do not impose any costs for which reimbursement is required by Part 7 (commencing with Section 17500) of Division 4 of the Government Code, nor do the proposed amendments impose any non-discretionary costs or savings on local agencies, nor result in any cost-impact on private persons or businesses. Additionally, the proposed amendments will not result in any cost or savings to any state agency or federal funding to the state.

FISCAL IMPACT STATEMENT (REGULATIONS AND ORDERS)

STD 399 (5/86)

STATE OF CALIFORNIA

SEE SAM SECTION 6055 FOR INSTRUCTIONS

DEPARTMENT	CONTACT PERSON	PHONE NUMBER
State Water Resources Control Board	Barbara Wightman	227-4318

TITLE/DESCRIPTION OF REGULATION/ORDER

Title 23, Division 3, Chapter 16 - Underground Storage Tank Regulations

A. FISCAL EFFECT ON LOCAL GOVERNMENT (Indicate appropriate boxes 1 through 6 and complete if necessary)

☐ 1 Additional expenditures of approximately $ _____ annually which are reimbursable by the State pursuant to Section 6 of Article XIII B of the California Constitution and Sections 17500 et seq. of the Government Code. Funding for this reimbursement

☐ a. is provided in (Item _____ Budget Act of _____) or (Chapter _____ Statutes of _____)

☐ b. will be requested in the _____ (FISCAL YEAR) Governor's Budget for appropriation in Budget Act of _____

☐ 2 Additional expenditures of approximately $ _____ annually which are not reimbursable by the State pursuant to Section 6 of Article XIII B of the California Constitution and Sections 17500 et seq. of the Government Code because this regulation

☐ a. implements the Federal mandate contained in _____ ;

☐ b. implements the court mandate set forth by the _____ court in the case of _____ vs _____ .

☐ c. implements a mandate of the people of this State expressed in their approval of Proposition No _____ at the _____ (DATE) election.

☐ d. is issued only in response to a specific request from the _____ , which is/are the only local entity(s) affected.

☐ e. is more appropriately financed from the _____ (FEES, REVENUE, ETC.) authorized by Section _____ of the _____ Code;

☐ f. provides for savings to each affected unit of local government which will, at a minimum, offset any additional costs to each such unit.

☐ 3 Savings of approximately $ _____ annually

☐ 4 No additional costs or savings because this regulation makes only technical, nonsubstantive or clarifying changes to current law and regulations

☒ 5 No fiscal impact exists because this regulation does not affect any local entity or program

☐ 6 Other

B. FISCAL EFFECT ON STATE GOVERNMENT (Indicate appropriate boxes 1 through 4 and complete if necessary)

☐ 1 Additional expenditures of approximately $ _____ , annually. It is anticipated that State agencies will

☐ a. be able to absorb these additional costs within their existing budgets and resources

☐ b. request supplemental funding by means of "Budget Change Proposals" for the _____ fiscal year.

☐ 2 Savings of approximately $ _____ annually

☒ 3 No fiscal impact exists because this regulation does not affect any State agency or program

☐ 4 Other

C. FISCAL EFFECT ON FEDERAL FUNDING OF STATE PROGRAMS (Indicate appropriate boxes 1 through 4 and complete if necessary)

☐ 1 Additional expenditures of approximately $ _____ annually.

☐ 2 Savings of approximately $ _____ annually

☒ 3 No fiscal impact exists because this regulation does not affect any federally funded State program or agency

☐ 4 Other

SIGNATURE	TITLE
[signature]	Deputy Director

AGENCY SECRETARY APPROVAL CONCURRENCE	DATE
	December 22, 1997

PROGRAM BUDGET MANAGER - DOF	DATE
DEPARTMENT OF FINANCE APPROVAL/CONCURRENCE	

D. Mandate on local Agencies or School Districts

MANDATE ON LOCAL AGENCIES OR SCHOOL DISTRICTS

The SWRCB has determined that the proposed amendments to the California Code of Regulations, Title 23, Division 3, Chapter 16, Underground Storage Tank Regulations does not impose a mandate on local agencies or school districts or have any fiscal impact on state agencies or federal funding to the state and there are no other nondiscretionary costs or savings to local agencies.

5. Final Text of Amended Regulations (without underline and strikeout)

FINAL TEXT

1998 AMENDMENTS TO CALIFORNIA UNDERGROUND STORAGE TANK REGULATIONS SECTIONS 2611, 2662, AND 2664

§ 2611. Additional Definitions.

"Motor vehicle fuel tank" means an underground storage tank that contains a petroleum product. The definition does not include underground storage tanks that contain used oil.

Authority: Health and Safety Code 25299.3, 25299.7
Reference: Health and Safety Code 25281, 25282, 25299.5(a); 40 CFR 280.10, 280.12

§ 2662. Requirements for Upgrading Underground Storage Tanks

(c)(2). Bladder system and cathodic protection -

Bladder systems shall be installed in accordance with the requirements of section 2664.

Authority: Health and Safety 25299.3, 25299.7
Reference: Health and Safety 25291 and 25296 and 40 CFR 280.1

§ 2664. Requirements for Using Bladder Systems

(b) Materials used in the bladder system and in the installation process shall be approved by an independent testing organization based on voluntary consensus standards, an industry code, or engineering standard for the applicable use of the bladder system. Evidence of this approval shall be provided to the local agency before the local agency authorizes the installation. The following conditions shall be met:

(1) The bladder system shall be installed under the direct supervision of a representative of the bladder system fabricator or a contractor certified by the fabricator.

(2) The entire interstitial space between the tank and the bladder shall be monitored in accordance with subsection 2632(c)(2).

(3) Materials used in the bladder system shall be product-tight and compatible with the substance stored.

(4) The bladder system shall include an internal striker plate (wear plate) which meets the requirements of section 2631(c).

(5) If the underground storage tank is constructed of steel, cathodic protection shall be installed in accordance with section 2635(a)(2)(A) and, before installing a bladder system, a special inspector shall certify that the underground storage tank has sufficient structural integrity to seal the interstitial space between the bladder and the underground storage tank and provide secondary containment. The special inspector shall make this certification by entering and inspecting the entire interior surface of the tank and shall base this certification upon the set of procedures and criteria specified in 2663(b)(2), except that abrasive blasting is only required to the extent deemed necessary by manufacturers specifications, or the special inspector, to assess the structural integrity of the underground storage tank.

(6) The bladder installer shall certify in writing to the local agency that sufficient measures have been taken to minimize or eliminate the potential for the underground storage tank or interstitial monitoring system components to puncture the bladder.

(7) Before installing a bladder, thin areas or other flaws in the underground storage tank walls that need additional reinforcing shall be reinforced in accordance with section 2661(d).

(8) If required by manufacturers' specifications or the special inspector, the underground storage tank shall be lined in accordance with section 2663 prior to installation of the bladder except only to the thickness deemed necessary by the more stringent requirement of the manufacturers' specifications or the special inspector.

Authority: Health and Safety Code 25299.3, 25299.7
Reference: Health and Safety Code 25292, 25292.1, 40 CFR 280.21, 280.32(d), 281.33

6. Final Certificate of Emergency Amendments

APPROVED

CERT

MASTER FILE

ATTORNEY [illegible]

DUE DATE 06/04/98

04/22/98 R-BASE

EDITOR DATA

MAIL-BACK

WASTER RESOURCES CONTROL WB 98-0422-01C

T. 23 §2611-2664 97-1216-03E

MEMORANDUM

Cal/EPA

State Water Resources Control Board

2014 T Street, Suite 130
Sacramento, CA 95814
Mail Code G-8
(916) 227-4377
FAX (916) 227-4349

Pete Wilson
Governor

TO: Barbara Eckard
Office of Administrative Law
555 Capitol Mall, Suite 1290
Sacramento, CA 95814-4602

98 JUN -2 PM 1:53
OFFICE OF ADMINISTRATIVE LAW

FROM: Allan Patton, Manager
Underground Storage Tank Program
DIVISION OF CLEAN WATER PROGRAMS

DATE: JUN 1 1998

SUBJECT: **OAL FILE NO. 98-0422-01C - UNDERGROUND STORAGE TANK REGULATIONS**

This is in response to your fax dated May 29, 1998 in which you request the State Water Resources Control Board to make corrections to the subject file. We understand that these corrections are needed in order for the Office of Administrative Law (OAL) to approve the proposed regulations.

We authorize OAL to make the following corrections to the file:

- Write in "State Water Resources Control Board" in box A1 and in A# write in "Underground Storage Tanks Upgrade Requirements" on Form 400
- Add the addendum to the Final Statement of Reasons (attached)
- Add the completed form 399 (attached)
- Add a revised Index and Declaration (attached)

If you have any questions concerning this matter, please call Charles NeSmith of this office at (916) 227-4377.

FISCAL IMPACT STATEMENT (REGULATIONS AND ORDERS)

STD 399 (3-95)

STATE OF CALIFORNIA

SEE SAM SECTION 6055 FOR INSTRUCTIONS

DEPARTMENT	CONTACT PERSON	PHONE NUMBER
State Water Resources Control Board	Barbara Wightman	227-4318

TITLE/DESCRIPTION OF REGULATION/ORDER

Title 23, Division 3, Chapter 16 - Underground Storage Tank Regulations

A. FISCAL EFFECT ON LOCAL GOVERNMENT (Indicate appropriate boxes 1 through 6 and complete if necessary)

☐ 1 Additional expenditures of approximately $ _____ annually which are reimbursable by the State pursuant to Section 6 of Article XIII B of the California Constitution and Sections 17500 et seq. of the Government Code. Funding for this reimbursement:

☐ a. is provided in Item _____, Budget Act of _____) or (Chapter _____, Statutes of _____)

☐ b. will be requested in the _____ (FISCAL YEAR) Governor's Budget for appropriation in Budget Act of _____.

☐ 2 Additional expenditures of approximately $ _____ annually which are not reimbursable by the State pursuant to Section 6 of Article XIII B of the California Constitution and Sections 17500 et seq. of the Government Code because this regulation:

☐ a implements the Federal mandate contained in _____

☐ b implements the court mandate set forth by the _____

court in the case of _____ vs. _____

☐ c implements a mandate of the people of this State expressed in their approval of Proposition No. _____ at the _____ (DATE) election;

☐ d. is issued only in response to a specific request from the _____, which is/are the only local entity(s) affected;

☐ e is more appropriately financed from the _____ (FEES, REVENUE, ETC.) authorized by Section _____ of the _____ Code;

☐ f provides for savings to each affected unit of local government which will, at a minimum, offset any additional costs to each such unit.

☐ 3. Savings of approximately $ _____ annually.

☐ 4 No additional costs or savings because this regulation makes only technical, nonsubstantive or clarifying changes to current law and regulations.

☒ 5 No fiscal impact exists because this regulation does not affect any local entity or program.

☐ 6 Other

B. FISCAL EFFECT ON STATE GOVERNMENT (Indicate appropriate boxes 1 through 4 and complete if necessary)

☐ 1 Additional expenditures of approximately $ _____. Annually. It is anticipated that State agencies will:

☐ a. be able to absorb these additional costs within their existing budgets and resources.

☐ b request supplemental funding by means of "Budget Change Proposals" for the _____ fiscal year.

☐ 2 Savings of approximately $ _____ annually

☒ 3 No fiscal impact exists because this regulation does not affect any State agency or program.

☐ 4 Other

C. FISCAL EFFECT ON FEDERAL FUNDING OF STATE PROGRAMS (Indicate appropriate boxes 1 through 4 and complete if necessary)

☐ 1 Additional expenditures of approximately $ _____ annually.

☐ 2 Savings of approximately $ _____ annually.

☒ 3 No fiscal impact exists because this regulation does not affect any federally funded State program or agency.

☐ 4 Other

SIGNATURE	TITLE	DATE
Dale Claxton	Deputy Director	December 22, 1997
AGENCY SECRETARY APPROVAL/CONCURRENCE: Sally M. Reynolds	DATE: 6/1/98	

PROGRAM BUDGET MANAGER - DOF

Title 23, Division 3, Chapter 16
Underground Storage Tank Regulations
1998 Amendments

INDEX TO RULEMAKING FILE

1. **Notice of Proposed Rulemaking**

   A. Notice Publication/Regulations Submission (Form 400)
   B. Initial Statement of Reasons

2. **Proposed Amended Regulations**

   A. 45-Day Notice
   B. Statement of Mailing
   C. Written Comments, SWRCB Response, All Related Documents
   D. Petition to Amend Regulations

3. **State Water Resources Control Board (SWRCB) Action**

   A. Resolutions Adopting Amended Regulations
   B. Tape Transcript of SWRCB Hearing (inside cover)

4. **Final Rulemaking Documents**

   A. Certification Statement (pursuant to Gov. Code 11346.1 subdivision (e))
   B. Final Statement of Reasons/Addendum to Final Statement of Reasons
   C. Fiscal Impact Statement
   D. Mandate on local Agencies or School Districts
   E. Completed Form 399

5. **Final Text of Amended Regulations (without underline and strikeout)**

6. **File of Related Emergency Regulations**

MEMORANDUM

Cal/EPA

State Water Resources Control Board

901 P Street, Sacramento, CA 95814

(916) 227-4377
FAX (916) 227-4349

Pete Wilson
Governor

TO: John D. Smith, Director
Office of Administrative Law
555 Capitol Mall, Suite 1290
Sacramento, CA 95814-4602

FROM: Walt Pettit
Executive Director
EXECUTIVE OFFICE

DATE: APR 21 1998

SUBJECT: FINAL CERTIFICATION OF EMERGENCY AMENDMENTS TO CCR TITLE 23, DIVISION 3, CHAPTER 16, SECTIONS 2611, 2662, AND 2664, UNDERGROUND STORAGE TANK REGULATIONS

The State Water Resources Control Board (SWRCB) is submitting the attached documents for final certification of emergency amendments to the California underground storage tank regulations which were approved by the Office of Administrative Law (OAL) on December 26, 1997 (OAL file #97-1216-03E). The Notice of Proposed Rulemaking (NPRM) for the amendments was published in the February 20, 1998 California Regulatory Notice Register, and final certification for the emergency amendments was adopted by the SWRCB on April 16, 1998. The NPRM indicates that the SWRCB hearing date for the adoption of final certification was April 23, 1998; however, this error was corrected and the correct date of April 16, 1998 was published in the February 27, 1998 California Regulatory Notice Register.

As required, we are including the following:

- Seven copies of the regulations with a copy of STD. 400 attached to each.
- The complete rulemaking file (including emergency rulemaking file) in accordance with Government Code Section 11347.3, with index and sworn statement.

If you have any questions concerning this matter, please contact Charles NeSmith of the Division of Clean Water Programs at (916) 227-4377.

Attachment

State of California Office of Administrative Law

Memorandum

To: Agency Regulation Coordinator

Date :06/10/98

File # :98-0422-01C

Phone :323-6225

From: OAL Front Counter

Subject: **RETURN OF APPROVED RULEMAKING MATERIALS**

OAL hereby returns this approved rulemaking file your agency submitted for our review.

Included with this approved file is a copy of the regulation(s) stamped "ENDORSED FILED" by the Secretary of State.

The effective date of an approved file is specified on the Form 400 (see item B.4) Note: The 30th Day after filing with the Secretary of State is calculated from the date the Form 400 was stamped "ENDORSED FILED" by the Secretary of State.

DO NOT DISCARD OR DESTROY THIS FILE

Due to its legal significance, please retain this rulemaking record. Government Code section 11347.3(d) requires that this record be available to the public and to the courts for possible later review. Government Code Section 11347.3(e) further provides that "...no item contained in the file shall be removed, altered, or destroyed or otherwise disposed of." See also the Records Management Act (Government Code section 14740 et seq.) and the State Administrative Manual (SAM) section 1600 et seq.) regarding retention of your records. If you decide not to keep this rulemaking record at your agency office or at the State Records Center, you may transmit it to the State Archives with instructions that the Secretary of State shall not remove, alter, or destroy or otherwise dispose of any item contained in the file. See Government Code section 11347.3(f)

enclosures

STATE OF CALIFORNIA OFFICE OF ADMINISTRATIVE LAW

NOTICE PUBLICATION/REGULATIONS SUBMISSION

CERT

(See instructions on reverse)

For use by Secretary of State only

STD. 400 (REV. 1/92) FMC

OAL FILE NUMBERS	NOTICE FILE NUMBER	REGULATORY ACTION NUMBER	EMERGENCY NUMBER	PREVIOUS REGULATORY ACTION NUMBER
	2980210-03	98-0422-01C	97-1216-03E	

For use by Office of Administrative Law (OAL) only

APPROVED FOR FILING AND PUBLICATION

JUN 02 1998

Office of Administrative Law

98 APR 22 AM 10: 22

OFFICE OF ADMINISTRATIVE LAW

93 JUN -2 PM 3:41

SECRETARY OF STATE

NOTICE REGULATIONS

AGENCY	AGENCY FILE NUMBER (If any)
STATE WATER RESOURCES CONTROL BOARD	

A. PUBLICATION OF NOTICE (Complete for publication in Notice Register)

1. SUBJECT OF NOTICE	TITLE(S)	FIRST SECTION AFFECTED	2. REQUESTED PUBLICATION DATE
Underground Storage Tanks Upgrade			

3. NOTICE TYPE	4. AGENCY CONTACT PERSON	TELEPHONE NUMBER
☐ Notice re Proposed Regulatory Action ☐ Other		

OAL USE ONLY	ACTION ON PROPOSED NOTICE	NOTICE REGISTER NUMBER	PUBLICATION DATE
	☐ Approved as Submitted ☐ Approved as Modified ☐ Disapproved/ Withdrawn	98#22	5-20-98

B. SUBMISSION OF REGULATIONS (Complete when submitting regulations)

1. SPECIFY CALIFORNIA CODE OF REGULATIONS TITLE(S) AND SECTION(S) (Including title 26, if toxics-related)

SECTIONS AFFECTED	
	ADOPT
	AMEND: Title 23, Division 3, Chapter 16, Section 2611, 2662 and 2664
TITLE(S)	REPEAL

2. TYPE OF FILING

☐ Regular Rulemaking (Gov. Code, § 11346) ☐ Resubmittal ☐ Emergency (Gov. Code, § 11346.1(b)) ☐ Resubmittal of disapproved or withdrawn emergency filing

☒ prior to, or within 120 days of, the effective date of the regulations listed above.

☐ Print Only ☐ Changes Without Regulatory Effect (Cal. Code Regs., title 1, § 100) ☐ Other (specify)

3. DATE(S) OF AVAILABILITY OF MODIFIED REGULATIONS AND/OR MATERIAL ADDED TO THE RULEMAKING FILE (Cal. Code Regs. title 1, §§ 44 and 45)

4. EFFECTIVE DATE OF REGULATORY CHANGES (Gov. Code § 11346.2)

☐ Effective 30th day after filing with Secretary of State ☒ Effective on filing with Secretary of State ☐ Effective other (Specify)

5. CHECK IF THESE REGULATIONS REQUIRE NOTICE TO, OR REVIEW, CONSULTATION, APPROVAL OR CONCURRENCE BY, ANOTHER AGENCY OR ENTITY

☐ Department of Finance (Form STD. 399) ☐ Fair Political Practices Commission ☐ State Fire Marshal

☐ Other (Specify)

6. CONTACT PERSON	TELEPHONE NUMBER
Charles NeSmith	227-4377

7. *I certify that the attached copy of the regulation(s) is a true and correct copy of the regulation(s) identified on this form, that the information specified on this form is true and correct, and that I am the head of the agency taking this action, or a designee of the head of the agency, and am authorized to make this certification.*

SIGNATURE OF AGENCY HEAD OR DESIGNEE	DATE
Original Signed By	APR 21 1998

TYPED NAME AND TITLE OF SIGNATORY

Walt Pettit, Executive Director

AGENCY name and FAX filled in per written agency request dtd 6-2-98

DECLARATION

The foregoing Index represents the rulemaking file of the subject proposed regulations of the SWRCB, Division of Clean Water Programs, Underground Storage Tank Program. The rulemaking file was reopened on *May 29, 1998* to add the Addendum to the Final Statement of Reasons and the completed form 399 to the file. The file is now complete and was closed on *June 2, 1998*.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge. Executed at Sacramento, California on 6/2/98.

Harry M. Schueller, Chief
Division of Clean Water Programs
State Water Resources Control Board

PROPOSED TEXT

1998 AMENDMENTS TO CALIFORNIA UNDERGROUND STORAGE TANK REGULATIONS SECTIONS 2611, 2662, AND 2664

§ 2611. Additional Definitions.

"Motor vehicle fuel tank" means an underground storage tank that contains a petroleum product ~~which is intended to be used primarily to fuel motor vehicles or engines~~. The definition does not include underground storage tanks that contain used oil.

Authority: Health and Safety Code 25299.3, 25299.7
Reference: Health and Safety Code 25281, 25282, 25299.5(a); 40 CFR 280.10, 280.12

§ 2662. Requirements for Upgrading Underground Storage Tanks

(c)(2). Bladder system, ~~interior lining,~~ and cathodic protection -

~~(A)~~ Bladder systems shall be installed in accordance with the requirements of section 2664.

~~(B). When upgrading a fiberglass or clad tank with a bladder system, interior lining and cathodic protection are not required if a special inspector and the local agency determine they are not necessary.~~

Authority: Health and Safety 25299.3, 25299.7
Reference: Health and Safety 25291 and 25296 and 40 CFR 280.1

§ 2664. Requirements for Using Bladder Systems

(b) Materials used in the bladder system and in the installation process shall be approved by an independent testing organization based on voluntary consensus standards, an industry code, or engineering standard for the applicable use of the bladder system. Evidence of this approval shall be provided to the local agency before the local agency authorizes the installation. The following conditions shall be met:

(1) The bladder system shall be installed under the direct supervision of a representative of the bladder system fabricator or a contractor certified by the fabricator.

(2) The entire interstitial space between the tank and the bladder shall be monitored in accordance with subsection 2632(c)(2).

(3) Materials used in the bladder system shall be product-tight and compatible with the substance stored.

(4) The bladder system shall include an internal striker plate (wear plate) which meets the requirements of section 2631(c).

(5) If the underground storage tank is constructed of steel, cathodic protection shall be installed in accordance with section 2635(a)(2)(A) and, before installing a bladder system, a special inspector shall certify that the underground storage tank has sufficient structural integrity to seal the interstitial space between the bladder and the underground storage tank and provide secondary containment. The special inspector shall make this certification by entering and inspecting the entire interior surface of the tank and shall base this certification upon the set of procedures and criteria specified in 2663(b)(2), except that abrasive blasting is only required to the extent deemed necessary by manufacturers specifications, or the special inspector, to assess the structural integrity of the underground storage tank.

(6) The bladder installer shall certify in writing to the local agency that sufficient measures have been taken to minimize or eliminate the potential for the underground storage tank or interstitial monitoring system components to puncture the bladder.

(7) Before installing a bladder, thin areas or other flaws in the underground storage tank walls that need additional reinforcing shall be reinforced in accordance with section 2661(d).

(8) If required by manufacturers' specifications or the special inspector, the underground storage tank shall be lined in accordance with section 2663 prior to installation of the bladder except only to the thickness deemed necessary by the more stringent requirement of the manufacturers' specifications or the special inspector.

~~(e). Before installing a bladder system in a steel tank, the tank interior shall be lined in accordance with section 2663 and shall be provided with cathodic protection as required by section 2635(a)(2)(A). The periodic inspection specified in subsection 2663(h) is not required unless the bladder system is removed for repairs or replacement. Unless the local agency determines otherwise, the limiting criteria specified in section 2663(b)(2)(B)(i) through (iv) do not apply if the lining is 250 mil fiberglass reinforced plastic or equivalent.~~

Authority: Health and Safety Code 25299.3, 25299.7
Reference: Health and Safety Code 25292, 25292.1, 40 CFR 280.21, 280.32(d), 281.33

ADDENDUM TO FINAL STATEMENT OF REASONS

1998 AMENDMENTS TO CALIFORNIA UNDERGROUND STORAGE TANK REGULATIONS SECTIONS 2611, 2662, AND 2664

Pursuant to Government Code Section 11346.2 subdivision (b)(6) the State Water Resources Control Board finds that the proposed regulations regarding rescinding the mandatory lining requirement for bladders systems do not conflict with or duplicate related federal regulations contained in the Code of Federal Regulations. This is because the federal rules are silent on the use of bladders. To use a bladder system in a tank upgraded under the federal rules, one only has to add interior lining or cathodic protection, but not both. The current California rules do require both, and the proposal, by eliminating the internal lining requirement, would cause California rules to become more consistent with federal rules.

Pursuant to Government Code Section 11346.2 subdivision (b)(6) the State Water Resources Control Board finds that the proposed regulations regarding the change in the definition of a Motor Vehicle Fuel (MVF) tank do not conflict with or duplicate related federal regulations contained in the Code of Federal Regulations. This is because the proposal would expand the definition of MVF to match the federal petroleum definition, with the exception of "used oil", and the State Water Resources Control Board finds that, pursuant to Government Code Section 11346.2 subdivision (b)(6)(A), this differing state regulation is authorized by law [Health and Safety Code Section 25250.1(a)(1) -- California law requires used oil to be handled as hazardous waste].